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November-December 1991

Infantry



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By Order of the Secretary of the Army

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20 COUNTERINSURGENCY AND SOVIET FORCE STRUCTURE
Graham H. Turbiville, Jr.
Major James F. Gebhardt

27 OPERATIONS IN AN NBC ENVIRONMENT
Roy D. Williams II

31 IN DEFENSE OF THE LENSATIC COMPASS
Noel J. Hotchkiss

DEPARTMENTS

1 COMMANDANT'S NOTE

3 INFANTRY NEWS

6 PROFESSIONAL FORUM

- **6 THE BATTALION PA**
  Lieutenant Colonel Cole C. Kingseed
- **9 DUTY IN A TRAINING COMPANY**
  Lieutenant Peter C. Molin
- **11 INFORMAL NCO-ER CONTRACT**
  Lieutenant Mark D. Butler
  Command Sergeant Major Angus A. Gray
- **13 THE BRADLEY: Let's Make It Even Better**
  Lieutenant Lawrence A. Leone
- **14 LAND NAVIGATION**
  Sergeant First Class Stuart M. Johnston
- **17 LRSU COMMUNICATIONS: Support for the AirLand Battle**
  Jerold R. Dodds

35 TRAINING NOTES

- **35 SNIPERS: A Neglected Combat Multiplier**
  Captain Philip K. Abbott
- **37 THE U.S. ARMY SNIPER SCHOOL: Selecting the Best Students**
  Seargeant First Class Earl S. Ellis
- **38 THE NEGLECTED M16 MAGAZINE**
  Major Thomas H. Baker
- **40 FIRE SUPPORT IN LOW INTENSITY CONFLICTS**
  Major Garnett Arnold
- **42 THE BREVITY MATRIX**
  Captain Daniel L. Thomas
- **43 MISTAKES: The Key to Learning**
  Major Noyes B. Livingston III

45 SWAP SHOP: Tanker's Rope

46 OFFICERS CAREER NOTES

49 BOOK REVIEWS

FRONT COVER: Arctic Test Center, by Lieutenant Mark McFaul

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Commandant's NOTE

MAJOR GENERAL JERRY A. WHITE Chief of Infantry

FUTURE CHALLENGES

Infantrymen everywhere, especially those who have been directly associated with the Infantry School, will understand the full measure of my pride in returning to Fort Benning as Commandant of the School and Chief of Infantry. Yet this pride is overshadowed by an awareness of the many obligations and heavy responsibilities that accompany this high honor. I assure all Infantrymen that I am fully mindful of the scope of these tasks and of the challenges the future holds for us.

It has been wisely observed that the history of our great Nation is in a sense the history of the United States Army. Surely it can be seen that the history of our Army is, in essence, the compilation of the deeds of Infantrymen from Concord to Kuwait. In fact, everything we do in the Army is done with one goal in mind—to see that Infantry soldiers and units are properly trained and equipped, to get them where they are needed, and to keep them doing what they have to do. It is these Infantrymen, strengthened and supported by its many comrades-in-arms, that is the U.S. Army in action. The successful efforts of our entire Army literally stem from the frequently unheralded but essential accomplishments of the foot soldier.

How well the soldier does his job depends for the most part on the quality of his training and the quality of his leaders. It is this pressing demand for high quality training and leadership that imparts unusual urgency to the mission of the Infantry School. My own experiences, particularly while serving recently as commander of the 7th Infantry Division (Light), have convinced me that today's soldier is the finest that has ever represented our country on any battlefield. He is certainly entitled to the finest leadership at all levels.

In the short time I have been at Benning, I have found that the officers, enlisted soldiers, and civilians who will help me serve you have a deep sense of commitment to the Infantry soldier. They also possess a new sense of urgency to exploit the lessons we have learned from our recent combat experiences, and to project the Infantryman into every conceivable combat environment. This is in keeping with the School's primary mission of producing the world's finest Infantryman.

But we cannot rest on our past laurels. The future presses on us with all its attendant unknowns. To maintain our edge we must make constant progress toward improved doctrine, more effective weapons and equipment, and, most of all, better trained soldiers.

The challenge of mobile warfare, as was recently demonstrated in the deserts of Southwest Asia, is one of the many facing us. Few leadership positions require a broader span of knowledge or a greater store of tactical proficiency than that of the Infantry leader in a mobile warfare environment. Accordingly, they must be masters of Infantry tactics and techniques and must prepare themselves and their units to fight as members of combined arms teams.

As we have also seen, tomorrow's battles will

not end at sundown. To fight those battles, we must be trained and equipped to fight through darkness, smoke, and other obscuration. We must also be physically capable of sustaining an operation until the battle is won. We truly must master the night.

Too, we cannot forget the challenges we face at the lower end of the operational continuum, in low intensity conflict. The challenges in that area have been spelled out for us most clearly in an article in the last issue of INFANTRY by James R. Locher III, the Assistant Secretary of Defense for Special Operations and Low Intensity Conflict. Secretary Locher reminds us that since the end of World War II, U.S. military forces "have been involved—directly and indirectly—in 48 major low intensity conflicts around the world" and that "despite our overwhelming military superiority, we have not been able to deter or to effectively fight low intensity conflicts."

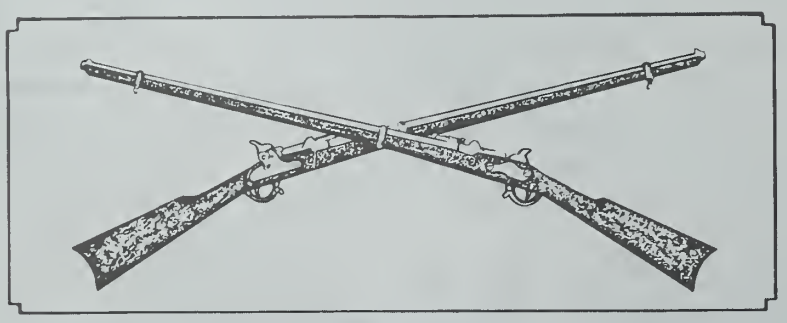
Fighting of this nature places a high premium on individual and unit discipline, perseverance, initiative, and mental and physical toughness, as well as unit morale and esprit. In this environment, the Infantryman may be called on to fight and win against a fanatical enemy in mountains, jungles, and swamps.

To train more efficently across the operational continuum, the Infantry School participates in many of the Army's simulation projects and it will continue to do so. The School has at all times emphasized the design and use of simulations to support specific training and analytical objectives. Many of these are gaming simulations, in which the motivational aspects of a competitive game are combined with a physical, symbolic, or procedural representation of a real-world situation.

The reasons for using these and other simulations today are even better than they were when we began using them. Not only will we have fewer resources than in years past, there will be an ever-increasing demand on those we will have—resources in manpower, equipment, ammunition, and POL, as well as in travel and training time. While we recognize that simulations can add value to our training programs, we at the School do not want to trade OPTEMPO hours for simulations. We cannot replace training realism in MILES-supported exercises or in live fire exercises.

Many exciting high technology developments are in the offing that will eventually be incorporated into our training. We fully intend to participate in and influence those developments to ensure that the end products meet our needs.

Each of us can contribute to the kind of Infantry we will have in the year 2000. There is a definite need for ideas from the field and we hope you will step forward. The soldier in the field is the one most plagued by problems, and he is also the one who is most eager for solutions. Any soldier who has an idea that might help us in our endeavors should bring it forward for examination. The key to our success is open and frank communication. Let us hear from you!



INFANTRY NEWS



CHIEF OF INFANTRY UPDATE

A UNIT MASTER GUNNER is one of the keys to developing a well trained unit that can employ its Bradley Fighting Vehicles effectively. The master gunner program, which began in 1983, certifies about 250 master gunners each year. These 11M and 19DD3 master gunners are the primary Bradley gunnery trainers at company, battalion, brigade, and division level.

In addition to functioning as a Bradley gunner, a qualified master gunner must also be able to develop a comprehensive training plan and schedule, troubleshoot turret maintenance problems, set up and execute live fire ranges, and use a variety of Bradley training devices to sustain his soldiers' gunnery skills.

The Army's only Bradley Master Gunner School is located at Fort Benning and is operated by noncommissioned officers of the 29th Infantry. This demanding 10-week course is one of the most academically challenging courses an NCO can attend. Sadly, almost 20 percent of the students in each class fail to complete the course.

The course is offered seven times each year, and each class is limited to 50 students. Students must be pre-enrolled; NCOs who come to Fort Benning in hopes of becoming alternates to attend a class are often disappointed. *(EDITOR'S NOTE: A news item in the September-October 1991 issue, page 7, erroneously stated that the Master Gunner Course has 30 slots per class.)*

Prospective students must meet the following established prerequisites:

- Be in the rank of sergeant (promotable), staff sergeant, or sergeant first class.
- Be qualified in MOS 11M or 19DD3.
- Be instructor/operator qualified on the conduct of fire trainer.
- Have a GT score of 100 or higher.
- Meet the weight standards specified in Army Regulation 600-9.
- Be recommended by the first lieutenant colonel in the chain of command.

As a final prerequisite, candidates must take the Bradley Gunnery Skills Test before being enrolled. Later, after the students are acclimated to the weather in Georgia, they are given the Army Physical Fitness Test (APFT) for record.

The fast-paced course of 449 hours includes 24 tests and quizzes that verify the students' mastery of the content. Its rigorous regimen requires an unusual combination of intelligence, endurance, and self motivation, and is not for every noncommissioned officer.

Those NCOs who graduate from the Master Gunner Course are ready to make a sizeable contribution to their units' readiness, and they can be rightfully proud of their accomplishment.

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THE 7th RANGER Training Battalion, Ranger Training Regiment, which conducts the desert phase of the Ranger Course, has moved from Dugway Proving Ground, Utah, to Fort Bliss, Texas. The change was made to reduce operating costs, increase training support, and avoid Utah's extreme winter weather conditions.

The desert phase, now the second phase of the course, will concentrate on desert survival and operational considerations and will be a transition from squad to platoon level operations for the students.

The first class to train at the new location began in September 1991.

A HELMET SHAVING BASIN is an item many soldiers have missed since the Army changed to the PASGT helmet. A soldier cannot heat water over an open flame in the new helmet, nor can he pour hot water into it without ruining the suspension webbing.

A solution has been proposed—a plastic polyethylene bag, durable enough to withstand hot water, would be inserted into the PASGT helmet. The bag would measure 18x18 inches and be two millimeters thick and would be issued with the MRE (meal, ready-to-eat).

If the idea is approved, soldiers should expect to begin seeing them late in Fiscal Year 1992. Since MREs are for use by the Department of Defense, however, all users (Army, Navy, Air Force, Marines, and Coast Guard) will have to agree to include the plastic bag in the MRE package.

The Infantry School POC is CPT

Taylor, NBC/Clothing and Individual Equipment Branch, Directorate of Combat Developments, DSN 835-5314 or commercial (404) 545-5314.

ARMY FIELD FEEDING System (AFFS) shortcomings were highlighted during Operations DESERT SHIELD and DESERT STORM. The problem areas included the extended use of MREs, poor Class I distribution, overtaxed food service personnel, and problems with the mobile kitchen trailers (MKTs) in desert conditions.

A study group was formed to evaluate rations, food service personnel, ration management training, and field feeding doctrine. The study also considered the idea of prepositioning war reserve stocks of rations and use of the commercial food industry.

The group's initial recommendations included improving the quality and variety of MRE entrees. Such items as wet packaged fruit, shelf-stable bread, and cakes will be in a new MRE. A wide variety of breakfast entrees—including biscuits, creamed beef, and pancakes—that were successfully tested this past summer will also be seen in the improved MRE.

The flameless ration heater is also to be added to the MRE, and the Army's Natick Research, Development, and Engineering Center is researching a self-heated ration in which a pull tab would activate a chemical heating compound.

As a result of the full introduction of A-rations (fresh food), more cooks will be returning to field units, and the 94-series career management field will be expanded and improved. Training programs will emphasize field operations, management of other classes of supply, and ration accountability and management. Training in dining facility management for officers will be reintroduced into basic and advanced officer courses and pre-command courses.

State-of-the-art field feeding equipment will replace obsolete equipment now in the field. New modular kitchens that can be configured for any tactical situation or field feeding requirement will replace the MKTs. This equipment will use a single fuel and will be lighter, safer, quicker to start, and easier to operate.

The Army's goal for its field feeding system is to provide soldiers in the field with three quality meals daily and to serve A-ration meals as often as the tactical situation permits.

The Infantry School POC is SSG Newman, Directorate of Combat Developments, DSN 835-3087 or commercial (404) 545-3087.

IMPROVED DESERT AND HOT weather battle dress uniforms are now under development:

Desert Battle Dress Uniform (DBDU). A program to improve the current DBDU was initiated under the Soldier Enhancement Program (SEP). The Army's goal is to reduce the weight of the uniform, improve comfort, and maintain durability, functionality, and environmental protection.

Prototypes of improved DBDUs have been tested over the past few months by U.S. Army soldiers of the multinational peacekeeping force in the Sinai. The soldiers who participated in the wear test were in various MOSs, 75 of them infantry.

The soldiers are testing four candidate fabrics in the DBDU as well as slight design modifications, including velcro fasteners on pockets and cuffs, zipper flies, the removal of waist tabs, the removal of the bellows on the lower coat pockets, and the removal of the reinforcing material from the shoulder yoke, seat, elbows, and knees.

The candidate fabrics are 50 percent polyester/50 percent cotton ripstop; 50 percent nylon/50 percent cotton ripstop; 50 percent nylon/50 percent cotton twill; and 100 percent cotton ripstop. The test fabrics are being compared to the standard DBDU, which serves as the control item.

Hot Weather Battle Dress Uniform (HWBDU). The improvement of the HWBDU—a joint effort of the Infantry School and the U.S. Army Natick Research, Development and Engineering Center—is aimed at improving the appearance of the uniform while maintaining its comfort and functionality.

Infantry soldiers from the 25th Infantry Division in Hawaii, the 193d Infantry Brigade in Panama, and the 6th Ranger Training Battalion in Florida, tested the prototypes from June to October 1991. The soldiers tested three candidate fabrics in ripstop poplin—a 50 percent polyester/50 percent cotton blend; a 50 percent nylon/50 percent cotton blend; and a 100 percent cotton fabric. The standard HWBDU was the control item for the test.

Design modifications to the HWBDU are similar to those made in the improved DBDU. The modifications tested included velcro fasteners on pockets and cuffs, zipper flies, and the removal of the waist tabs and the bellows on the lower coat pockets.

The Infantry School POC is CPT Johnson, DSN 835-3087, commercial (404) 545-3087.

THE MILES SNIPER SYSTEM is now being fielded. It consists of a small arms transmitter (SAT) modified to have a range of 1,000 meters. The SAT is affixed to a weapon in a manner that will not interfere with the optic sights. The sniper SAT is mounted on the bottom of the barrel of the M24 sniper rifle and on the side of the M21.

The U.S. Army Infantry School and the John F. Kennedy Special Warfare Center were given 24 prototype mounts for user testing. The U.S. Army Sniper School at Fort Benning concluded the first user test in January 1990. The deficiences noted were corrected, and the School tested the new mount in December 1990. It was determined the item would perform to the requirements.

The MILES sniper system is to be used for force-on-force training for MILES exercises up to battalion or regimental task force level. As with other MILES devices, the basis of issue is expected to be approximately one device for each three weapons. This number will be adjusted for unique

situations, including the combat training centers. These systems will be added to battalion MILES kits. In a light division, this will mean 12 to 15 devices to support training.

The basis of issue is currently three per infantry battalion kit and five per mechanized infantry battalion kit. Distribution began in late September.

THE U.S. ARMY OFFICER Candidate Alumni Association and the 3d Battalion (OCS), 11th Infantry, jointly celebrated the 50th Anniversary of the OCS program with a two-day program of activities culminating with a banquet and ball on 24 May 1991.

Former Secretary of the Army John O. Marsh, who is an OCS graduate, addressed the 500 people who attended the banquet. Three members of the first OCS class, which graduated on 27 September 1941, attended the celebration.

The Alumni Association welcomes inquiries concerning membership in the association. Regular membership is open to graduates of any Officer Candidate School. Associate membership is available to non-OCS graduates who served as staff and faculty members at an OCS and other persons who have made and will continue to make significant contributions to the OCS program. Annual dues are $10.00 for either class of membership.

Anyone interested in joining may write to Secretary USAOCAA, Inc., P.O. Box 2192, Fort Benning, GA 31905-2192.

WATER PURIFICATION equipment that was previously under development was tested under actual combat conditions during Operations DESERT SHIELD and DESERT STORM.

Three self-contained reverse osmosis water purification units (ROWPUs) were airlifted to Southwest Asia in October 1990. This equipment was intended to provide a 3,000-gallon-per-hour corps support capacity to fill the gap between the general support and division support capabilities.

With this unit, the water is first passed through a multi-media filter that removes most of the particles. Then it is forced through cartridge filters that remove the remaining particles. Finally, it goes through the reverse osmosis element, which rejects the ions and allows only pure water to pass.

Whether the water begins as brackish well water or salt water, the ROWPU removes all impurities and contaminants, including chemical and biological agents. The end product is much cleaner than the tap water in most households.

The collected data was forwarded to the project manager to complement the test data already collected.

A NEW CHAMPUS HANDBOOK, written in everyday language for service families and their sponsors, has been published. It contains the latest information about the basic CHAMPUS programs' benefits and procedures. It also discusses the uniformed services' Active Duty Dependent Dental Plan and CHAMPVA (Civilian Health and Medical Program of the Department of Veterans Affairs) and lists military medical facilities worldwide.

The revised handbook is available at military services' publication distribution centers, the U.S. Public Health Service, and headquarters offices of all CHAMPUS claims processors.

All previous editions of the handbook are out of date and should be discarded immediately.

THE U.S. ARMY SPECIAL Forces Command (Airborne) has been created to realign command and control of Reserve and regular Army Special Forces assets.

Previously, active duty Special Forces were assigned to the 1st Special Operations Command (Airborne), and Reserve Special Forces units were assigned to the U.S. Army Reserve Special Operations Command (Airborne). The realignment assigns all active duty Special Forces units to the new command and gives the command operational control over Reserve Special Forces units.

The 1st Special Operations Command has been eliminated by the reorganization.

The Reserve Special Operations Command has been reorganized as the U.S. Army Civil Affairs and Psychological Operations Command, responsible for both active Army and Reserve civil affairs and psychological operations units. Reserve units will be assigned to the new command, which will have operational control over affiliated regular Army units. The realignment makes no changes to the current training relationship and alignment of Army National Guard Special Forces units.

The 75th Ranger Regiment and the 160th Special Operations Aviation Regiment (Airborne) will continue to report directly to the U.S. Army Special Operations Command.

THREE VIDEO TAPES are available to tell soldiers about the Army Master Data File (AMDF). The tapes, called "The Army Master Data File, Your Key to the Army Supply System," can help soldiers and units learn the basics of Army Logistics and keep up to date with the supply system.

The tapes are available at local Visual Information Support Centers or Training Support Centers. Look for Publications Inventory Number (PIN) 706177DA (TVT 38-29).



PROFESSIONAL FORUM



The Battalion PA

LIEUTENANT COLONEL COLE C. KINGSEED

The Army's physician assistant program is one of its newest, largest, and highest quality programs. Its graduates have long enjoyed a reputation of offering concerned care to soldiers and other beneficiaries of Army medical care. Since the first Army physician assistant class graduated from the school at Fort Sam Houston in 1973, physician assistants (PAs) have played an integral part in maintaining the combat readiness of our infantry units.

Today's PAs continue the proud tradition of service to the infantry community and have expanded their practice to include family care. Not only are PAs trained practitioners, they are also valuable staff members and trainers who, when used properly, can contribute significantly to unit readiness.

When Congress authorized the Army to train 400 physician assistants in 1971, the purpose was to augment Army Medical Department (AMEDD) capabilities by freeing physicians from duties as battalion surgeons and to implement a training program that would produce individuals who were highly skilled in primary medicine for duty in combat arms battalions. Since the inception of the program, the PA's role has expanded to include specialty training in the areas of emergency medicine, aviation medicine, occupational health, orthopedics, and cardiopulmonary perfusion.

On the basis of my observations during 20 years of commissioned service and my recent command of an infantry battalion, together with numerous conversations with fellow battalion commanders and members of the staff of the U.S. Army physician assistant program, I would like to offer a few recommendations to our junior leaders on employing the battalion PA to gain the most benefit from his services.

Most of our junior leaders are familiar with the more traditional roles of physician assistants. PAs generally monitor morning sick call and advise company and battalion leaders on the medical welfare of the soldiers in the command. Additionally, PAs serve in the troop medical clinics where they see soldiers who have been referred from morning sick call. PAs also provide medical care to dependents during family practice hours.

In addition to these important functions, PAs have other skills that can help company commanders and first sergeants improve the physical well being of the soldiers in their units. Too frequently, though, leaders fail to take full advantage of these skills.

As with most leaders, the PA can contribute more to the effectiveness of a command if he clearly understands what is expected of him. A battalion commander must define what he expects his PA to do and must also delineate the PA's responsibilities from those of the medical platoon leader or medical platoon sergeant.

By the time a physician assistant reaches a battalion, he has had considerable training. He is a graduate of the Advanced Cardiac Life Support (ACLS) Course and the Trauma Management Course, and is a qualified instructor in Basic Cardiac Life Support (BLS or CPR) Courses. Moreover, the Army's physician assistant program recently received an unprecedented five-year accreditation from the Committee on Allied Health Education and Accreditation, the American Medical Association's certifying arm. Consequently, a battalion PA is uniquely qualified to lend his professional expertise to training a battalion's medical personnel.

In an infantry battalion, the physician assistant has overall responsibility, along with the medical platoon sergeant and platoon leader, for training the members of the medical platoon. One responsibility is preparing and training for the annual Expert Field Medical Badge (EFMB) competition. The EFMB program is an invaluable opportunity to improve the professional skills of the medical personnel. My battalion

PA, for example, developed a training program that resulted in the highest number of EPMB recipients of any infantry battalion in the division for three consecutive iterations. I was as proud of those soldiers as I was of the infantrymen in the battalion who earned Expert Infantryman Badges.

Equally important is the development of a viable combat life-saving course. The PA is the principal trainer in this area. He can ensure that the medics who actually conduct the training teach the soldiers who are to be combat lifesavers the critical skills that will enable them to save the lives of their fellow soldiers in the fire teams and rifle squads in their units. Like all principal trainers, the PA must closely monitor the instruction to ensure that these soldiers have the emergency skills they need to operate in a combat environment, particularly when the assigned medic is not available or when the number of casualties exceeds the medical team's capability. Does the combat life-saving course teach the soldiers all they need to know to save the life of a fellow soldier? The PA can provide that answer.

The PA is also the primary trainer of the medical aidmen in pre-hospital trauma life support and in the emergency measures they need to know to sustain life on the battlefield until the wounded can be evacuated to an aid station. The aidmen may have had this training, but they may not have had an opportunity to practice its execution. This training is the unit PA's primary responsibility. Too, medical aidmen must develop their skills in performing military medical triage on the battlefield, which is markedly different in some circumstances from civilian triage standards. The PA has a tremendous amount of knowledge in this area, and his training is essential to the success of the medical platoon's combat mission.

Additionally, the PA should be familiar with both the battalion and the company training schedules, because these schedules will indicate higher or lower sick call rates and will help the medical platoon allocate its resources. If a unit is to field march over rugged terrain, for example, the physician assistant should be able to inform a commander what the probable unit sick call rate will be the morning of the march, what additional supplies the platoon medics should carry, and what preventive measures should be taken to ensure that the soldiers receive the proper medical attention before, during, and after the exercise. An increase of 10 to 20 percent over the normal sick call rate is frequently the norm when units schedule rigorous training, and this is information a commander should have available.

Aside from monitoring sick call, the PA also plays a vital role in a garrison environment. One of my colleagues actively employed his physician assistant in running the battalion gym and supervising the profile physical training program. Using his medical knowledge, the PA made significant improvements in the unit PT program and greatly reduced the number of orthopedic injuries. Moreover, he had the technical skill to see that soldiers on profiles performed the physical activities that would lead most quickly to their recovery.

A smart commander makes full use of his physician assistant. The PA is his personal expert on fitness, wellness, preventive medicine, field sanitation, and occupational health issues. If the PA does not immediately know the answer, he is trained to find the answers within the AMEDD community. This pertains to matters such as physical training (including aerobic and weight training), cholesterol counseling, diet, smoking, accident prevention, hearing conservation, asbestos in motor pools, laser hazards, and the like.

The PA also provides important support for family support group (FSG) activities. In addition to dependent care, the physician assistant can also conduct school physicals for the soldiers' dependents and teach first aid classes in support of unit FSGs. All of these efforts can contribute to the establishment of a positive command climate.

Still, it is in the field where PAs often make their greatest contribution to a command. During one month-long deployment to the outback of Australia, my battalion task force, numbering nearly 1,000 soldiers, suffered an average of one sick call a day. From a medical perspective, the tremendous success of the deployment was based substantially on the PA's energetic



supervision of the medical training program. Daily he visited the companies and platoons, ensuring that the soldiers were drinking enough water, checking their feet, and inspecting the unit medics. The result was phenomenal. In the entire task force, only two soldiers had to be hospitalized during the five weeks the unit was deployed.

The battalion had similar results during a deployment to Japan in the dead of winter. After initial adjustments were made due to the frigid conditions, a preventive medicine program (consisting of classes and noncommissioned officer inspections) reduced cold weather injuries to a minimum. Again, our success was due primarily to the energetic program supervised by the physician assistant.

Local training exercises can produce similar results, but only if the PA is aggressive in executing his duties. Too frequently, commanders are content to allow the PA to remain in the field trains or combat trains. There are certain times when the trains are indeed the place for the battalion's medical expert, but if time and circumstances permit, there is nothing wrong with the PA visiting the companies and platoons in their field locations.

There are many benefits to these visits. He can see to it that the medics are complying with sick call policies and procedures; he can inspect company latrines (in accordance with AR 40-5, Field Sanitation), company personal health practices in foot care and bathing, company mess facilities, and sources of water; and he can improve the soldiers' morale by demonstrating his personal commitment to their health.

At the same time, the PA can learn, for example, whether the NCOs are ensuring that their soldiers maintain medical discipline within the ranks and whether field sanitation meets the standard. Nothing should escape his eye.

The PA also has the responsibility both to collect and to interpret medical intelligence for the commander in relation to its effect upon the unit's operational ability. If the PA is to provide adequate input on selecting casualty collection points, evacuation routes, and landing zones, he must become knowledgeable of the terrain features in the operational area, familiar with map reading, and skilled in current communications procedures.

In addition to inspecting the command for medical shortcomings, the PA can also conduct classes to improve the combat readiness of the command. As an expert on medical treatment and evacuation, the physician assistant probably has more experience than any other leader in the command. He should be able to offer suggestions on marking the casualties during hours of limited visibility — maybe a certain color of



chemlite for the most seriously wounded, another for the less seriously wounded, and a third for the dead. He also should be able to teach the medics and the graduates of the life-saver's course to make a number of different field expedient litters.

Too few units actually practice moving casualties or coordinate and train in the use of litters, loading of vehicles, and the number of personnel required to evacuate the dead and wounded. These internal unit procedures must be rehearsed and coordinated before actual combat, even though they may temporarily delay the tactical training designated by the unit commanders. Again, the PA is the expert who evaluates the effectiveness of this training from a medical perspective.

Additionally, given the capabilities and the temperament of the enemies we are likely to confront in the future, practice in chemical warfare must include well-rehearsed plans for decontamination and treatment of chemical casualties. This is a nightmare scenario, even in training, and many trainers are reluctant to execute the training regularly. But it must be done. No one understands the personnel and logistics requirements until they actually train on the finer points of chemical casualty evacuation.

Instructors in the PA school will tell you that it takes 12 men (non-medics) to run a decontamination line. If these men are in the highest heat category and are working in MOPP 4 and butyl aprons, a commander must plan for three shifts working 20 minutes and resting 40. Even at that rate, they can decontaminate only one patient every 20 minutes. Again, the PA is the expert who can help work through this most difficult situation.

The physician assistant, therefore, is an important staff member. The average Army PA is a staff sergeant with 11 years of service. Because of this experience, he has a unique ability to communicate with the enlisted soldiers, the junior NCOs, and the first sergeants. The PA understands things from both the enlisted and NCO perspective. Consequently, he can foster smooth communications within the unit.

The physician assistant will not make an important contribution to the command, however, unless the commander uses his technical training and talents to the greatest possible extent. A commander's imagination is frequently the only constraining factor. Successful leaders use every tool at their disposal to improve the readiness and effectiveness of their units. The physician assistant should be no exception.

Lieutenant Colonel Cole C. Kingseed previously commanded the 4th Battalion, 87th Infantry, 25th Infantry Division, and is now attending the Naval War College before joining the faculty of the United States Military Academy. He is a 1971 ROTC graduate of the University of Dayton and holds a doctorate from Ohio State University.

Duty in a Training Company

LIEUTENANT PETER C. MOLIN

Given a choice between an assignment to a company in an infantry or armor division or a Ranger battalion and an assignment to a basic combat training (BCT) or Infantry one station unit training (OSUT) battalion, few officers would deliberately choose the latter. They would probably assume that if they served in a training unit their career development would fall far behind that of their peers in TOE (table of organization and equipment) units.

The challenge, excitement, and sheer thrill of commanding a TOE company is hard to match. But an assignment to one our Army's training units also provides numerous, often unrecognized, opportunities for professional and personal growth. In fact, in many ways, the knowledge, values, and lessons drawn from several years as a BCT or infantry OSUT executive officer or company commander may be as valuable to a young officer in his future assignments as those on the Demilitarized Zone in South Korea or at one of the combat training centers.

In such an assignment he will be afforded a great opportunity to meet his professional obligation to become thoroughly proficient in the individual combat skills and the basic soldier standards. He can do this by either teaching himself or learning from the drill sergeants, who are required to impart to the Army's newest soldiers skills that cover a wide range of military subjects. In fact, these skills are usually taught in as much detail as in most TOE units, and certainly in a more structured manner.

One of the most important skills is basic rifle marksmanship (BRM), and the young officer should not squander this opportunity to become more knowledgable in teaching and practicing rifle marksmanship. He should begin with the fundamentals and then polish his ability to transmit those fundamentals to his soldiers. Later, he will work with BRM cadre members who are proficient in advanced marksmanship techniques and can tap their knowledge.

Another subject in which an infantry officer must be smart is drill and ceremony (D&C). Traditionally, this has been classified as NCO business but, if it is, it is also Army business, and an officer has a duty to learn as much about it as possible.

TRADITION

Whether an officer likes it or not, formations, parades, and ceremonies will always play a major role in Army life. They are also the lifeblood of BCT and Infantry OSUT, because they are critical to the soldierization process. The tradition of soldiering is clearly evident as such skills are developed and they provide a foundation for instruction, discipline, and standards.

Further, BCT and Infantry OSUT are probably the only places where virtually all such activities are performed to exact Field Manual 22-5 standards. If an officer does not learn them at this important stage of his growth, he may never again have such a tailor-made environment in which to learn them.

In addition to the opportunities to increase his technical competence, an officer will find many chances to learn and grow in other aspects of leadership. For example, the NCOs with whom he will be working are hand-picked professionals operating in an environment in which they are entrusted with measured authority, there are increased risks, and they must shoulder responsibilities that test their mettle. If a young officer can learn to work with and lead NCOs in this environment, he will be able to work with and lead NCOs anywhere.

The officer must learn to enforce standards. A common excuse for sloppy execution or poor leadership is, "They're just new soldiers! What do you expect?" The truth is, though, that most of our newest soldiers are highly motivated and attentive and want to be challenged.

The tasks, conditions, and standards are clearly laid out in a training unit, and there are fewer training distractors than in a TOE unit. Nothing in BCT or Infantry OSUT, other than (perhaps) basic and advanced rifle marksmanship, is so difficult that the soldiers and cadre working together should not be able to execute to near perfection. If there is something they cannot do to these standards — from physical fitness to NBC to guard mount to the five-day FTX — either the leaders don't care enough or they lack the "how-to."

An officer, therefore, has a great opportunity both in learning how to do things and in helping raise the capabilities of his drill sergeants. Under the precepts of small group instruction (SGI), all drill sergeants should be capable of teaching all the subjects in the POI. But the reality is that because drill sergeants in BCT hold a variety of MOSs — combat, combat support, and combat service support — some



are not initially qualified to do so, or if they have the technical knowledge, they are not yet skilled teachers.

The officer, by virtue of his formal and military education, should be comfortable talking on his feet before large or small groups of people. He can thus become a constructive critic of his drill sergeants' instruction methods. He can do this either informally or through formal programs in which the drill sergeants practice teaching their classes, fully or partly, to the company's officers before they must stand in front of their soldiers. Rehearsing with someone who is competent and caring can help them reach excellence.

BCT and Infantry OSUT also provide an excellent opportunity for an infantry officer to learn about soldiers and for our newest soldiers to learn about officers. Like it or not, the company commander and executive officer are the officers the soldiers see day after day.

The officers must insist on speaking to these soldiers frequently, either individually, in small groups, or as an entire company, and must take advantage of every opportunity to participate in their training. Above all, they must not become spectators in their own companies. There are usually a few soldiers in any given company who are headed for Officer Candidate School, and they will learn about officers' duties by watching their company officers in action. At the same time, an officer will find many rewards in learning about soldiers and in meeting them again and again as they progress through their careers.

Finally, as structured as the BCT and Infantry OSUT POIs may seem, they offer numerous opportunities for a young officer to exercise his creativity and initiative. For example, he can use Saturday afternoons, Sundays, and holidays for reinforcement training, sports programs, charity work, or even small-scale tactical training. Other opportunities such as road marches, FTXs, and tactical end-of-cycle evaluations can help him plan and execute multi-echelon training.

A key advantage to serving on a training installation is the unparalleled opportunity for personal growth. Although officers put in long hours in BCT and Infantry OSUT, they won't face unexpected alerts or deployments. The chain of command permitting, this is a great time to take courses toward an advanced degree, either at the post education center or at off-post cooperative program facilities.

He will also find his service in BCT or Infantry OSUT an excellent time to read important military publications, including the classics, and build a base for greater learning and understanding in the future.

Finally, a training unit is an outstanding place to improve physical conditioning. All too often the physical training programs in TOE units fall apart over the course of a series of 30-day field problems. This certainly is not the case in BCT or Infantry OSUT. Not only does an officer work out every day with his soldiers, he can also participate in many unit and post athletic events.

The key to making all of these advantages possible is both individual initiative and firm, enlightened leadership. A training center's day is long and rushed, and without clear guidance from the chain of command, the company officers' duties may evolve into those of a "crisis management team." The chain of command, therefore, must develop a program that provides for an officer's professional growth and builds on his enthusiasm for military service. A steady flow of motivators such as specialty school slots, dynamic live fires, Expert Infantryman's Badge competitions, exchanges with TOE units, and creative officer professional development classes will further stimulate his development and his love for the Army.

Nothing in a training assignment can duplicate the thrill of a night jump or a company tactical live fire exercise, but a training assignment can be critical to an officer's development. The experiences he gains from serving in a BCT or an Infantry OSUT unit not only serve the needs of the Army but also develop an important base of knowledge and values that will serve him well wherever the Army sends him. It will make a difference.

Lieutenant Peter C. Molin served as a platoon leader and company executive officer in the 5th Battalion, 20th Infantry, in Korea and as acting commander of a BCT company at Fort Dix. He holds a master's degree from the University of California and was commissioned through the Officer Candidate School in 1987. He recently completed the Infantry Officer Advanced Course and is now assigned to the XVIII Airborne Corps.

Informal NCO-ER Contract

LIEUTENANT MARK D. BUTLER
COMMAND SERGEANT MAJOR ANGUS A. GRAY

The NCO Counseling Checklist/Record (DA Form 2166-7-1) is designed to be used with the NCO Evaluation Report (NCO-ER) (DA Form 2166-7) as a single source counseling support document. It is required for counseling all NCOs, corporal through sergeant first class, and provides a section in which to record the results. It contains about all the information necessary to prepare for and conduct a thorough counseling session.

Our unit has found an additional support document useful during initial and quarterly counseling sessions. It is an established, written, informal "contract" between the rater and each NCO in the unit (a platoon, for example), that measures performance and distinguishes between the Success and Excellence requirements for the NCO-ER. It is similar to the NCO-ER, is maintained in each NCO's counseling file, is an *open* document, and *is not binding by law*. It is simply an agreement between the rater and the rated NCO to support the ratings that are given. (See a major

SAMPLE NCO-ER CONTRACT

COUNSELING SUMMARY—Scout Platoon Sergeant
Rated NCO _____
Rater _____
Senior Rater _____
Reviewer _____

PART III. DUTY DESCRIPTION

Principal Duty Title: Scout Platoon Sergeant
Duty MOS: 11B4G

Daily Duties and Scope: Responsible for the training, welfare, discipline, and combat readiness of a 24-man light infantry scout platoon. Assists and advises the platoon leader in his duties. Supervises the platoon's administration, logistics, and $218,480 in MTOE equipment. Advises the platoon leader on all matters pertaining to the NCOs and enlisted men of the platoon. Tactically responsible for taking charge of task organized elements, quartering parties, and security in all missions. Takes command of the scout platoon if the platoon leader is absent or wounded.

Areas of special emphasis: DRF 3 Prep, BDE FTX, PLT FTX, Great Aloha Run, Prep/Upload for JRTC movement, post-COMET training, JRTC.

Appointed Duties: POV NCOIC.

PART IVa—VALUES/NCO RESPONSIBILITIES

- Put the Army, the mission, and subordinates before own personal interests.
- Meet challenges without compromising integrity.
- Maintain high standards of personal conduct on and off duty.
- Obey lawful orders and do what is right without orders.
- Choose the hard right over the easy wrong.
- Exhibit pride in unit, and be a team player.
- Demonstrate respect for all soldiers regardless of race, creed, color, sex, or national origin.

PART IVb—COMPETENCE

To receive a rating of **Success:**

- Qualify on assigned weapon during rating period.
- Meet PMOS SQT/SDT standards for grade.
- Develop and manage a platoon SQT/SDT program that ensures three squad leaders and their subordinates meet PMOS SQT/SDT for their grades.
- Maintain 100 percent accountability and combat readiness of all soldiers and equipment at all times.
- Enroll in and successfully complete any correspondence course.
- Acquire one 25th Infantry Division Master's qualification in any area during rating period.
- Prepare a sensitive items list before all deployments and local field training exercises and continually monitor the list during these events.
- Ensure that the platoon executes DRF-1 N-Hour sequence and barracks close-out plan to standard.

To receive a rating of **Excellence:**

- Qualify *expert* on assigned weapon.
- Develop and manage a platoon SQT/SDT program that produces a 90 percent average.
- Score 95 percent on SQT/SDT FY(91).
- Develop a program that results in all eligible soldiers being enrolled in successful continuing education.
- Acquire two 25th Infantry Division Master's qualifications in any areas during rating period.

PART IVc—PHYSICAL FITNESS AND MILITARY BEARING

To receive a rating of **Success:**

- Score 270 or better on the APFT.
- Develop and execute a demanding PT program that produces a platoon average of 260 or better and a pass rate of 100 percent.
- Set the example during daily PT.
- Serve as an example for all soldiers in the platoon to emulate.
- See that soldiers always have proper haircuts.
- Stress the importance of always being in the prescribed uniform in garrison and in the field, and always set the example.
- Have a platoon member selected as Soldier of the Month during rating period.
- Enforce 95 percent participation during all PT sessions and road marches with a goal of 100 percent.
- Set a high standard of personal appearance; never wearing or allowing soldiers to wear unserviceable uniforms or boots.

To receive a rating of **Excellence:**
- Score 290 or better on the APFT.
- Develop, manage, and personally supervise a platoon physical fitness program that produces a platoon average of 290 or better.
- Have a platoon member selected Soldier of the Month once during any quarter of the rating period.
- Have a platoon member selected NCO of the Month once during a quarter.

PART IVd—LEADERSHIP

To receive a rating of **Success:**
- Lead by example at all times—in garrison, in the field, on and off duty.
- Ensure that all soldiers receive quality performance-oriented counseling at least once a month. Spot check counseling files monthly.
- Counsel all NCOs to ensure that they receive quality NCO-ER counseling once a quarter in addition to their monthly performance counseling.
- Ensure that all NCOs in the platoon have established written "contracts" that outline job responsibilities and expectations.
- Recommend problem soldiers for rehabilitation, disciplinary action, bar to reenlistment, or separation, as appropriate.
- Ensure that qualified and deserving soldiers are promoted at the proper times.
- Emphasize safety in all activities, both on and off duty.
- Develop and maintain platoon discipline and cohesion through timely and appropriate disciplinary actions, high standards of barracks and personal appearance, and emphasis on military courtesy and conduct.
- Participate in unit team sports.

To receive a rating of **Excellence:**
- Develop, manage, and constantly monitor a platoon counseling program that measures performance and distinguishes between Success and Excellence requirements.
- Motivate one squad leader and all qualified and deserving soldiers to attend and graduate from RIP.
- Coach a unit sports team.

PART IVe—TRAINING

To receive a rating of **Success:**
- Ensure that 100 percent of assigned soldiers pass their SQT/SDT for the fiscal year.
- Ensure that 100 percent of assigned soldiers are qualified on their assigned weapons.
- Ensure that 100 percent of assigned soldiers are qualified on the NBC Battle Run and Chamber.
- Encourage all eligible NCOs to earn one 25th Infantry Division Master's qualification during the rating period.
- Encourage all soldiers to attend appropriate service or leadership schools.
- Ensure that all soldiers are prepared and adequately trained to attend RIP and/or Ranger School.
- Ensure that squad leaders and assistant squad leaders are actively involved in training their squads.
- Negotiate brigade FTX with the fewest possible untrained areas.
- Train the scout platoon during the second quarter to survive and win at JRTC.
- Train squad leaders and scouts in garrison and in the field. Stress the following areas:
  — Proper movement techniques (with security always in mind).
  — Reconnaissance techniques.
  — Communications (constant, proper procedures 1 X Pad, SALUTE).
  — Call for fire.
  — Casualty evacuation.
- Attend all training meetings, provide input to the training schedule, advise the platoon leader of all required training; be creative, inventive, and enthusiastic in planning and conducting all training.

To receive a rating of **Excellence:**
- Upgrade all P/U assessments from brigade FTX to perfection.
- Encourage eligible NCOs to earn two division master's qualifications in any given area during rating period.
- See that platoon produces a 90 percent average or higher on SQT/SDT during the fiscal year.
- Ensure that all platoon weapons are 100 percent zeroed and constantly maintained.
- Ensure that all soldiers are zeroed on their assigned weapon and within 30 days of assignment to any new weapon.

PART IVf—RESPONSIBILITY AND ACCOUNTABILITY

To receive a rating of **Success:**
- Pass all command inspections, including the QGI and COMET, with a rating of Satisfactory or better in responsible areas.
- Maintain 100 percent accountability of all assigned MTOE equipment.
- Maintain accurate, up-to-date alert roster for the platoon.
- Ensure that all soldiers are trained for combat.
- Ensure that deserving soldiers receive timely and appropriate recognition or awards for outstanding achievements and service.
- Supervise the operator preventive maintenance of platoon equipment (to -10 standards) so that no decrease in combat capability occurs.
- Keep the platoon leader informed of personnel and equipment status at all times.
- Ensure that all scouts maintain serviceable TA-50 items by being active in PEO and inspections—both sets.
- Meet social obligations and encourage NCOs to do the same.
- Maintain the barracks to QGI standard.
- Execute aggressive POV inspections to ensure that our soldiers operate SAFE transportation.

To receive a rating of **Excellence:**
- Receive score of 100 percent on QGI POV, home town news release, physical security, and crime prevention inspections.
- Ensure that the platoon has the best looking soldiers and barracks during the QGI.
- Ensure that all school quotas given to the platoon are filled with informed and prepared soldiers (zero LOMs, etc.).
- Ensure that no operator level penalties are incurred during inspections.

Statement: "I have read and have been counseled on this document. I am fully aware of what I must do to receive a Success or an Excellence rating on my NCO-ER. I am also aware that if I do not agree with the standards established by this document, I must discuss these points with my rater to solve and/or correct any discrepancies. Additionally, I may include items not mentioned in this document in the event I perform at a level worthy of Excellence. This may qualify me to receive an Excellence rating in the respective area of interest."

END OF STATEMENT

Date _____ XXXXX XXXXXXXX
Rated NCO

STATEMENT: "I am fully aware of my responsibilities as the Rater to the Rated NCO. I agree to be fair in my evaluation of the Rated NCO. I agree to counsel him quarterly and more often, if needed. I agree to listen to his comments and will weigh all facts carefully to make a decision concerning his evaluation."

END OF STATEMENT

Date _____ XXXX X XXXXXXXX
Rater

portion of a sample contract for a scout platoon sergeant in the 25th Infantry Division.)

On the contract form, the rating chain is identified, the *draft* duty description is identified, and the standards for success and excellence regarding each area—competence, physical fitness, military bearing, leadership, training, responsibility, and accountability—are spelled out.

During an initial counseling session, the rater explains the rating chain and the duty description, discusses the meaning of the values and responsibilities section on the NCO-ER, and explains from the informal contract the standards for success and excellence that apply to the specific duty position. All the data that is documented during initial and quarterly counseling sessions is recorded on a DA Form 2166-7-1, with the informal contract attached to it.

During a quarterly counseling period, the rater updates the informal contract on the basis of what he has observed and the NCO's demonstrated behavior and results, discusses what was done well and what could have been done better, and records this data on the DA form.

The process is painless and lets the rated NCO know exactly what is expected of him and where he stands. Then, when it is time to prepare an NCO-ER for the rated NCO, the rater can refer back to the bullet comments made during the quarterly counseling sessions.

All NCOs deserve effective counseling and an honest and fair rating. If a rater uses the informal contract method, he will improve NCO duty performance, open lines of communication (without interpersonal gaps), and ensure that standards are set and met. He will not be forced to second guess a rated NCO's accomplishments and cause an inaccurate or unfair NCO-ER to be sent forward with meaningless bullet comments.

A leader must read and study the regulatory guidance regarding counseling, no matter what method or technique he uses. If he does this, he and his NCOs can make the counseling and rating system work.

Lieutenant Mark D. Butler, when he wrote this article, was a scout platoon leader, 1st Battalion, 14th Infantry, 25th Infantry Division. He is now a rifle platoon leader in the 2d Battalion, 75th Ranger Regiment. He is a 1988 ROTC graduate of Tarleton State University.

Command Sergeant Major Angus A. Gray, command sergeant major of the 1st Battalion, 14th Infantry, has completed 27 years of active service. He conceived and developed the informal "contract," which was then further developed and modified for use at platoon and squad level.

The Bradley
Let's Make It Even Better

LIEUTENANT LAWRENCE A. LEONE

With an ever-decreasing budget and limited research and development funds, it is time the Army started making conscientious efforts to acquire off-the-shelf technology and reapply existing technology that can help us field the most lethal fighting force possible.

In the M2A2 Bradley, the Army has one of the world's finest fighting vehicles. Its ability to engage and destroy both tanks and light armored vehicles has been well documented. Its speed, agility, and survivability are almost unmatched in the free world. With its add-on armor and anti-spall kevlar lining, its crew is doubly protected.

While the Bradley excels in passive protection, I believe it falls short in providing the crew with close-in security capabilities. The M231 firing port weapon is designed for the rear security of the vehicle while moving or at short halts. The gunner is supposed to fire strictly tracer ammunition so that he can more easily adjust his fire onto a target he is observing through the rear vision blocks. The M231's minimum cyclic rate of fire is 1,225 rounds per minute from a 30-round magazine. For a soldier trying to suppress an RPG team to his rear, that high cyclic rate of fire will cause him to run through his loaded magazines in a short period of time, maybe too short to properly suppress an enemy threat.

A simple and cost-effective solution to this problem is available today on the civilian market — a 90-round drum magazine specifically designed for the M16 family of weapons and made of high-impact, clear plastic. It costs about $45. If the Army bought these magazines in large numbers, the price would surely go down and would better allow the M231 to be used for its designed purpose. This 90-round drum magazine could also be used by both the M16A2 and the M249 in emergency conditions,

making it more valuable to the entire vehicle.

The Bradley is further hampered by not having a coaxial or hatch-mounted machinegun. Today, if the vehicle experiences turret power failure or battle damage, it requires an extreme effort on the gunner's part to traverse and elevate the weapons to defend against close attack by dismounted infantry, aircraft, or vehicles.

The solution to this problem is to slightly modify the vision block guards around the Bradley commander's hatch to accommodate the mounting of an M60D machinegun. This would allow the gun to traverse about a 90-degree arc left and right while the pintle would give the machinegun an almost unlimited ability to depress and elevate. A Bradley commander would immediately be able to protect his vehicle from attack.

Serious consideration should also be given to what the Bradley's driver, gunner, and commander have as personal weapons. Under the current TOE (tables of organization and equipment), they are issued M16A2 rifles and no side arms. They are stored in hard-to-reach places in the vehicle and certainly cannot be passed through a hatch that has someone standing in it. This means they cannot be used quickly. Simply put, the Bradley crew members need to be able to fight for their vehicle much the same way artillerymen have historically fought for their guns.

On the next point, it appears that armor soldiers agree with me that the crews of both the M1A1 tank and the Bradley need side arms and submachineguns for the security of their vehicles. The M9 pistol is replacing the M1911A1 as the standard side arm for both the infantry and the armor, but the tankers are replacing the M3 submachinegun with a shortened variant of the M16A2. Tankers have used the M3 since World War II, and it has proved itself when an enemy climbed on a tank, for example. It was smaller than either the M1 Garand or the M1 carbine and used the same ammunition as the M1911A1. The infantry has no such weapon for its vehicle crews, and even the tankers now need a different one.

The replacement weapon should use the same ammunition as the M9 and be small enough to handle easily, and, should the need arise, to be stuck through an open hatch and fired.

The solution, again, is readily available. I believe that several weapons in use by police around the world meet those criteria now. The Army could easily acquire MP5s, Uzis, or rechambered MAC-11s in the required numbers. These types of weapons are compact, light, and capable. They have high rates of fire and could easily suppress an enemy at 150 meters. Shoulder holsters are available on the civilian market that would allow both tank and Bradley crews to carry those weapons while performing their missions in the vehicle.

It's time for the Army to start acquiring the "off-the-shelf" items that make sense and that will help us now. If an item is available today that will save lives and accomplish the mission, then we need it today. The common infantryman on the ground does not want to wait for the Army to develop a weapon that will carry him into the next century when the lack of such a weapon tomorrow may cost him his life. Let's not pay the price for learning a hard lesson.

Lieutenant Lawrence A. Leone, when he wrote this article, was assigned to the 6th Battalion, 6th Infantry, 1st Armored Division. He was an enlisted soldier for more than three years before being commissioned through ROTC from Loyola College of Maryland in 1987. He is now assigned to 2d Battalion, 10th Infantry, Fort Leonard Wood.

Land Navigation

SERGEANT FIRST CLASS STUART M. JOHNSTON

In INFANTRY's November-December 1990 issue, Major Charles F. Coffin discussed the merits of the protractor compass. (See "The Protractor Compass," pages 15-17.) I would like to take this discussion a few stages further, because there are various aspects of land navigation that I believe are lacking in our current training.

To start with the basics, we seldom teach or even mention tactical navigation to our soldiers, but surely this is what an infantryman must do to reach his objective and accomplish his mission. Infantrymen are not orienteers who want to get to the next point by the quickest, shortest possible route. They want to use the most covered and concealed route to mask their movement to the objective. To do this they must learn to read the ground they will be covering, and they learn to read the ground by conducting map reconnaissances and developing the ability to see this flat piece of paper as a three-dimensional picture. Then, once out on the ground they look for dead ground

that can be used to best advantage.

This may sound rather far-fetched for a young private, but if he is taught from the start to look closely at the contour lines and the contour interval on a map, reading them will soon become second nature to him. He needs to get out to the field as often as possible with map and compass, sit at a known point, and compare a map to the ground. A leader does not need a vast training area to allow all his soldiers to do this.

As part of such a map reconnaissance, an intervisibility study can well be done, depending on the mission. For example, if you plan to site an observation post (OP) from which to look at a specific point such as a road intersection, you may find when you get there that a hill is obstructing your view. A simple graph will tell you this before you leave your planning area.

The first thing to do is to mark your potential OP (point A) and the place you want to observe (point B) on your map. Next, put the edge of a blank sheet of paper running through these two points. Mark on the paper points A and B and all the contour lines in between them. Write next to these marks the elevation of each contour line, including the elevations of A and B. Now take the paper away from the map and draw lines straight down from the marks. Draw a graph below these with the contour values marked down the left side. Continue the lines into the graph, stopping each one at its appropriate value. Mark the end of each line with a small X. Once all the lines have been marked, join the Xs. The resulting line will be the same shape as the actual ground between points A and B. (See Figures 1 and 2.)

It should be noted that, because of the curvature of the earth, this method is accurate only for distances up to three kilometers. (There is a formula that allows for this curvature, but it is quite complex.) Also remember that if there is a hill between points A and B, it could have trees or buildings on it that would effectively add several meters to its height and thus obstruct the view. (Figure 1 shows intervisibility and Figure 2 non-intervisibility.)

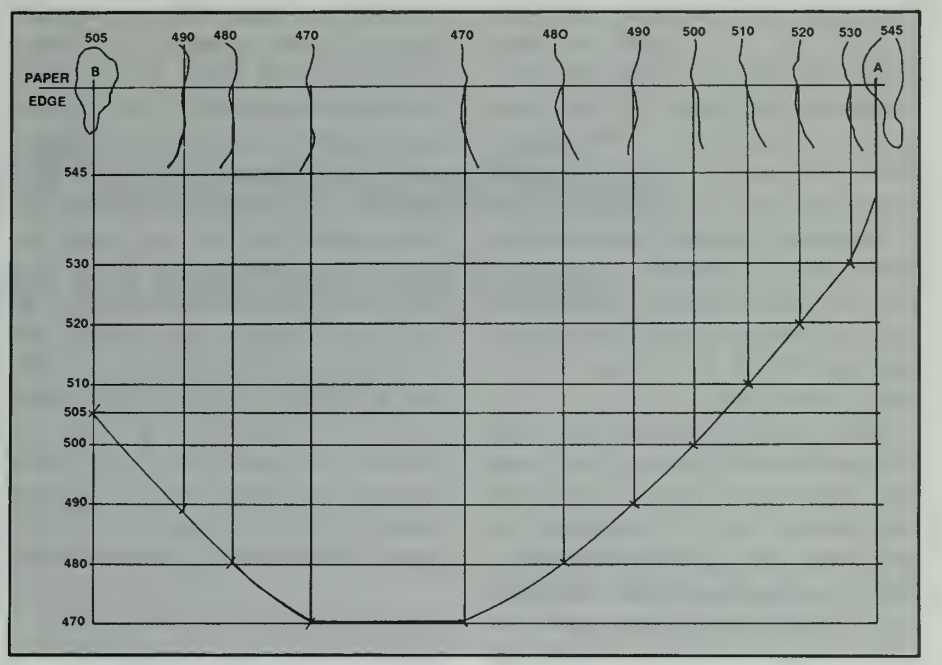


Figure 1

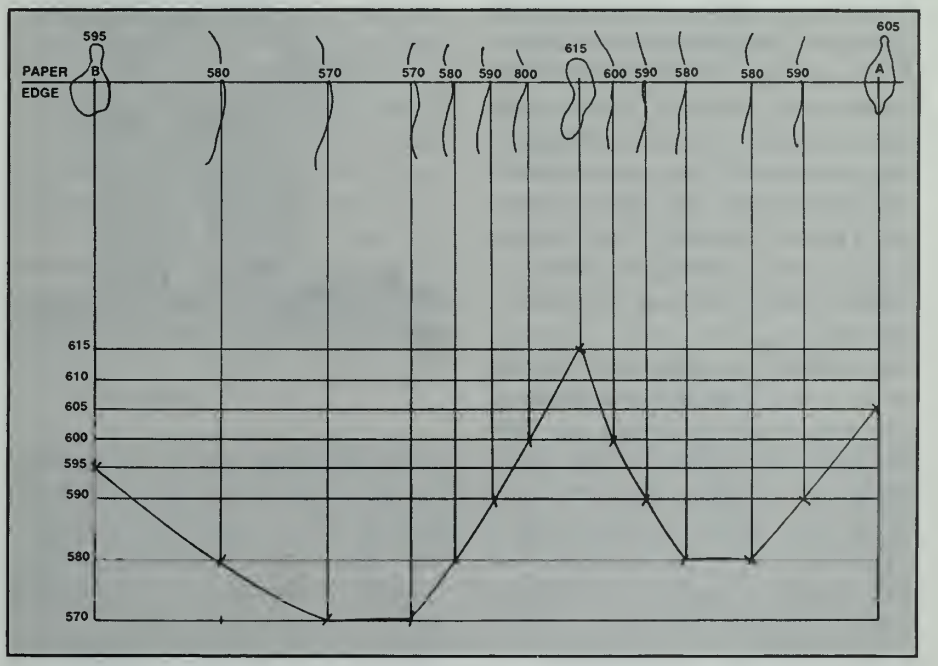


Figure 2

Intervisibility studies are also useful in defensive positions, because they can quickly identify any dead ground in which the enemy could hide. From your defensive position, do as many intervisibility graphs as time allows for the likely enemy approaches. From these, you will be able to see where all the dead ground lies. (Radio operators can also use this system to find out whether they have line of sight for their radios.)

Along with the map reconnaissance, leaders must consider likely positions for enemy OPs and the capabilities of the enemy's surveillance equipment, such as thermal imagers and image intensifiers. Infantrymen can no longer move freely around the battlefield at night, and route selection has become more and more critical.

Unfortunately, our land navigation courses, set up as they are, develop skills in the soldiers that are totally opposite of those they need. There is always a

rush to get them from point A to point B. They put an azimuth on their compasses, and go off with little or no thought to the ground they will have to cover. The ability to differentiate among six poles, spaced 200 meters apart along a road, bears little relevance to any tactical problem I have ever come across, with the possible exception of a passage of lines. Yet this is a common task in battalion land navigation training and at the various schools infantrymen attend.

Something else that would help teach navigation would be for everyone to use mils instead of degrees. Currently, infantrymen, with the exception of mortarmen, use degrees for everything. Other combat arms soldiers use mils.

If we all used mils, we would not have the problem of converting from one system to the other. When an infantryman passes an azimuth in degrees to his fire direction center (FDC), it has to be converted to mils for use by the gunline. This may sound simple enough, but it is one more place where an error may occur, and it wastes valuable seconds that might save a soldier's life. (Also, in these days of multi-national armies, we would be using the same system as our allies in NATO.)

In addition to standardization, mils are far more accurate than degrees. With mils, a circle is divided into 6400 increments as opposed to 360 using degrees, and directions can be far more precise. Our current lensatic compass is marked in mils, and it would be a simple matter of getting people in the habit of using mils. If we should change over to a protractor compass in the future, models using mils are also readily available.

Another excellent navigational tool I would like to mention is the altimeter. Altimeters are now available on many moderately priced wrist watches. (See "The Altimeter," by Lieutenant Colonel William Menning, INFANTRY, November-December 1990, pages 40-42.)

Finally, aerial photography is a much neglected navigational aid that deserves better recognition. Aerial photographs are the next best thing to actually looking at the ground. An aerial photograph will show, for example, whether there are obstructions that limit intervisibility, even if they do not appear on the map. These photos also provide the most up-to-date information available on enemy positions, new roads, cut-down trees, and the like.

Basically, aerial photographs come in two types—oblique and vertical. The oblique type—taken from the front, side, or rear of an aircraft—provides a view of the ground that is much like the one you would see if you were standing on high ground and looking out over your planned patrol route. This type of photo still has dead ground and



is not very useful to an infantryman. The other type, the vertical—taken from directly above—provides a picture much like a map, and this is the one infantrymen should be most interested in.

It is not always easy to identify the area a photograph covers, because it does not come with grid coordinates marked on it (although it does show the date time group when it was taken). The best thing to do is to find an easily distinguishable shape on the photograph—such as a lake, forest, or road intersection—and then look for it on the map. Once this is done, find two easily identifiable points on the map that are directly under one easting line; then find these two points on the photograph and draw a line connecting them. This becomes your north arrow.

Your next task is to scale the photograph, and this is also quite easy. Again, look for two points on the map, but this time not necessarily under an easting. Find their exact distance apart by using the map scale. (The points should be 1,000 meters apart, although this is not vital.) Once you have done this, find these same two points on the photograph. The distance between the two points is the same as the ground distance between the two points on the map. Transfer this measurement to the edge of the photograph and divide it into ten equal segments, and you have your scale. Remember, though, that three centimeters on one photograph is not the same ground distance as three centimeters on another photograph, because they may have been taken from different altitudes.

Unfortunately, aerial photographs distort around the edges because of the camera lens, so putting a grid on a photograph is very complicated and not practical for anyone other than an expert.

In an infantry battalion, the S-2 staff members are responsible for obtaining aerial photographs, and they can tell you what paperwork you need. If you tell them the area you want covered, they should be able to do the rest.

This is far from a definitive account of aerial photographs, but a little study will increase your proficiency in using them. (See also "Aerial Photography," by Captain Eugene J. Palka, INFANTRY, May-June 1987, pages 12-14; and "Aerial Photographs," by Sergeant First Class John E. Foley, INFANTRY, March-April 1989, pages 38-39.)

Land navigation is a massive subject, but these suggestions may spark interest in some different skills that can be taught to promote greater efficiency in professional soldiers.

Sergeant First Class Stuart M. Johnston is an exchange instructor at the British School of Infantry. He formerly served as a squad leader, a platoon sergeant, and an assistant operations sergeant in the 2d Battalion, 75th Ranger Regiment, and as an instructor at the Jungle Warfare School.

LRSU Communications

Support for the AirLand Battle

JEROLD R. DODDS

General U.S. Grant once said, "The art of war is simple enough. Find out where your enemy is. Get at him as soon as you can. Strike at him as hard as you can and as often as you can, and keep moving on."

The conduct and the results of Operation DESERT STORM echo those words, and that success can be attributed, in part, to the commanders' ability to receive, analyze, and rapidly react to human intelligence (HUMINT).

Long range surveillance units (LRSUs) are primary sources of HUMINT for a corps or division commander. Each corps has a dedicated LRSU company (Figure 1) and each division a dedicated detachment (Figure 2). The basic LRSU mission is to gather HUMINT in a corps or division area of interest (Figure 3) against second echelon and follow-on enemy forces.

The heart of LRSU operations — the six-man long-range surveillance teams (18 per corps company, six per heavy division detachment, four per light division detachment) — may operate from 50 to 350 kilometers forward of the FLOT (forward line of own troops). Real time or near-real time HUMINT is essential in complementing electronic, imagery, and other intelligence providing systems to enable a commander to make accurate, timely assessments and decisions. To achieve this goal, a LRSU must have a reliable and responsive communication system from the operational teams back to and through the LRSU base stations and into the corps or division tactical operations center (TOC) and the G-2.

The LRSU elements use special communication equipment to transmit and receive long range, secure burst transmissions. The LRSU teams are currently authorized the following primary communication equipment:

Digital Message Device Group (DMDG), OA-8990. This nine-pound portable, self-contained digital burst message device bursts messages up to 1,000 characters in length, using the standard typewriter keyboard with 32-character display, and stores them in the equipment. An integral modem permits connection to nearly all HF/VHF combat net radios.

AN/PRC-104B. This is a 20-watt, 14-pound manpack high frequency transceiver whose digital tuning permits upper sideband, lower sideband, continuous wave, or data mode operation on any of 280,000 channels.

Small Unit Radio (SUR), AN/PRC-126. The SUR is a small, lightweight (33-ounce), handheld transceiver designed for small unit leaders. It has 2,320 channels with a 10-channel preset. It has a range of 500 meters with a short antenna and 3,000 meters with a long antenna and is KYV-2A compatible for communication security (COMSEC). The SUR is used primarily by teams for assisting in making a passage of lines or to coordinate extractions.

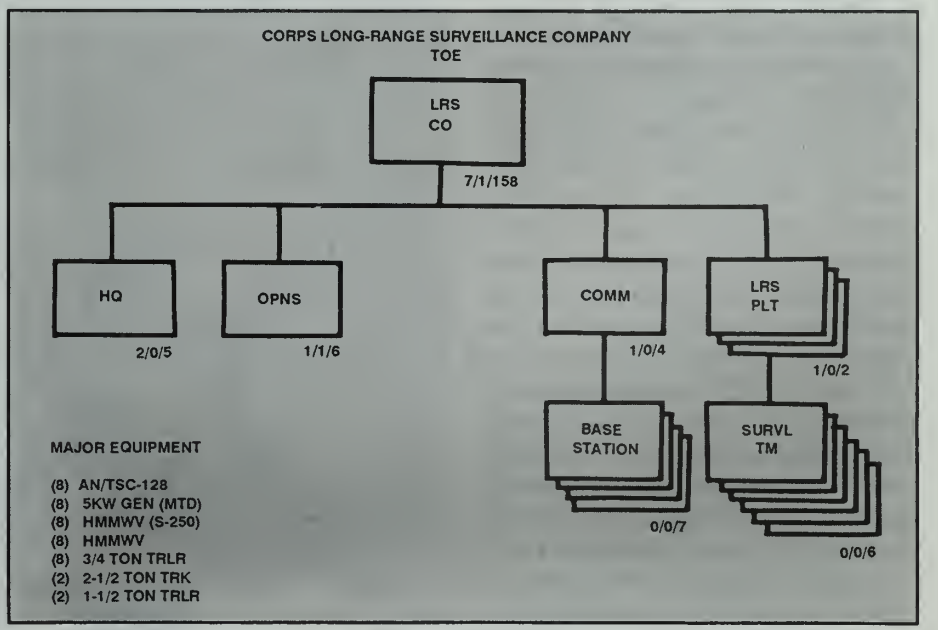


Figure 1

Antenna Group AN/GRA-50. This is a half-wave doublet assembly designed to increase the communication distances of HF radio sets. It has a frequency range from 1.5 to 30 megahertz (MHz) and weighs 11.75 pounds.

EYRING Low Profile Antenna, 302A. A rugged, lightweight (5-pound), rapidly deployable (on or near the ground), towerless, HF/VHF antenna, the 302A is a nondevelopmental, broadband, directional antenna that requires no tuning. It is well suited for man-portable CW/SSB (voice)/FSK (data) transceivers rated at up to 400 watts peak (200 watts average). (About 1,000 of these were employed during Operations DESERT SHIELD and DESERT STORM.)

Interim Long Range Surveillance Unit Base Radio Station (LRSUBRS), AN/TSC-128. Until April 1990, there was no standardized LRSUBRS in the Army. The units used "patchwork" systems that could not receive, process, and retransmit essential HUMINT information fast enough to allow corps and division commanders to use the information to its fullest extent.

During the first quarter of FY 1990, the Department of the Army authorized the Infantry School and the U.S. Army Communication Electronics Command (CECOM) to design and field an interim base station from existing equipment until an objective system could be developed through the normal acquisition cycle.

As a result of the fielding of mobile subscriber equipment, enough AN/GRC-122E and AN/GRC-142E shelters were identified to convert into AN/TSC-128 LRSUBRSs. CECOM then developed the engineering installation specifications and conversion kits with instructions for the gaining units. The gaining units would then perform the conversions, assisted by their local CECOM or AMC logistics assistance representative (LAR). The gaining unit and the major Army command would provide the required radio telephone/teleprinter (RATT) shelters and fund the conversion kits and installation costs.

In the third quarter of FY 1990, the Infantry School and the local CECOM LAR fabricated the first two AN/TSC-128 systems, followed by two more for the Infantry School's LRSU for training. During Operations DESERT SHIELD and DESERT STORM, a total of five LRSUBRSs (ten vehicles) were operational. It is anticipated that all LRSU elements will have their interim base stations converted by the fourth quarter of FY 1992, a total of 126 LRSUBRSs for the total force.

Primary communication equipment for the interim standardized base stations consists of a mixture of old and current systems. As new authorized equipment is fielded, it will be integrated into the base stations either as a one-

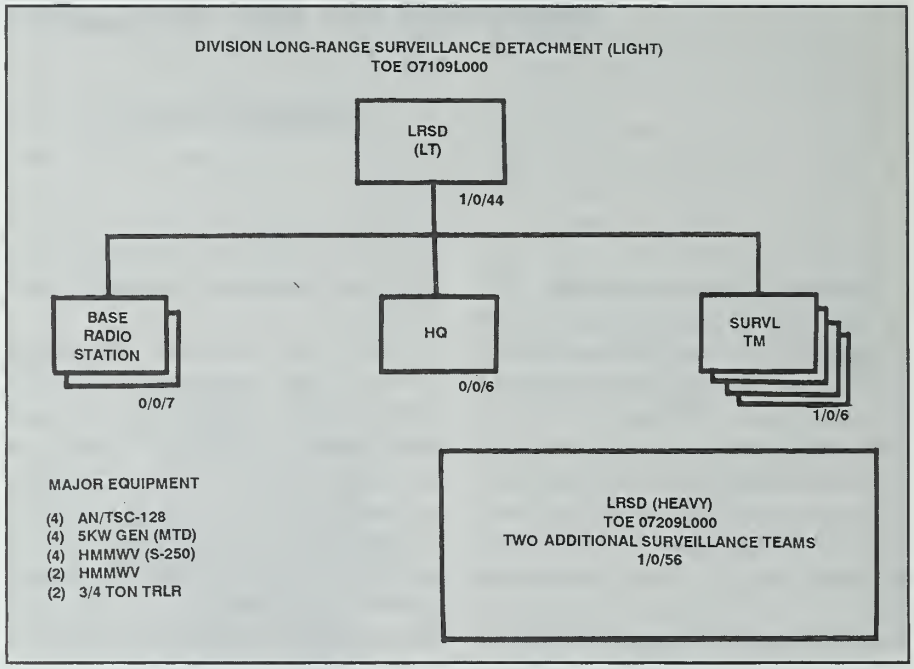


Figure 2

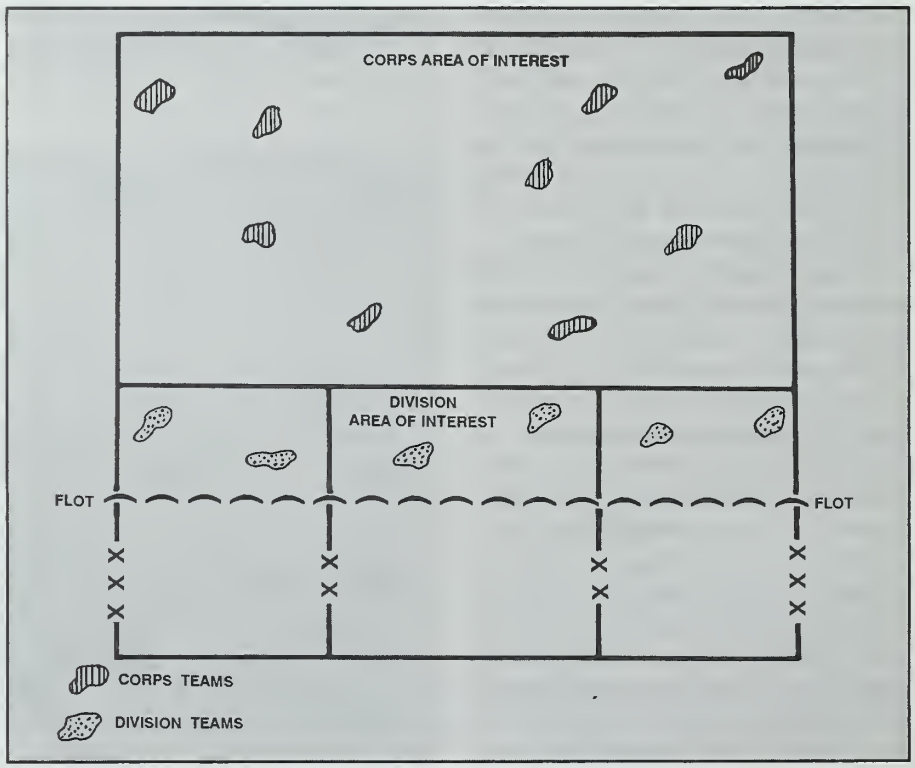


Figure 3

CURRENT	REPLACEMENT
Radio Set: AN/GRC-213 (6)	Objective High Frequency Radio
Radio Set: AN/GRC-193 (2)	Objective High Frequency Radio
DMDG: OA-8990 (8)	KL-43C and Objective
LRSUBRS	LRSUBRS
Lightweight Digital Facsimile: AN/UXC-7 (2)	Objective LRSUBRS, TBD
Radio Set: AN/VRS-46/48 (2)	SINCGARS
Teletypewriter Set: AN/UGC-74 (2)	Objective LRSUBRS, TBD
COMSEC Device: TSEC/KY-57 (2)	Imbedded COMSEC
Charger Box: OA-8990 (2)	Objective LRSUBRS, TBD
Interface Assemblage for OA-8990-AN/UGC-74 (2)	Objective LRSUBRS, TBD

APPROVED ADD-ON EQUIPMENT AS FIELDED

- Mobile Subscriber Radiotelephone Terminal (MSRT) — AN/VRC-97 (2 per LRSUBRS)
- Digital Secure Voice Terminal (DSVT) TSEC/KY-68 (2 per LRSUBRS) — For use with MSRT
- Enhanced Manpack UHF Terminal (EMUT) TACSAT (1 per team, 6 per LRSUBRS)
- Data Transfer Device (DTD) AN/CYZ-10 (1 per team, 2 per LRSUBRS) — Replaces paper CEOI
- Special Operations Radio Antenna Kit (SORAK) (1 per team, 2 per LRSUBRS
- Special Operations Tactical Video System (SOTV) (1 per team, 2 per LRSUBRS)
- Joint Advanced Special Operations Radio System (JASORS)
  - -Digital message entry device (1 per team)
  - -Integrable Base Station (1 per 2 LRSUBRS at division, 1 per 3 LRSUBRS at corps)
  - -Transit Case Base Station (1 per 2 LRSUBRS at division, 1 per 3 LRSUBRS at corps)
  - -Intra-team Radio (2 per team)
  - -Manpack Radio (1 per team)

Figure 4

for-one replacement for the old equipment, or as new, required add-on equipment. A LRSUBRS will have two AN/TSC-128s, each configured to transmit and receive. Its vehicle, typically a HMMWV (high mobility multipurpose wheeled vehicle) with trailer-mounted generator, is required to operate the system. (A list of RATT shelter component items to be retained, turned in, or installed is shown in the installation specifications provided by CECOM, and in the Logistic Support Plan Communications Central: AN/TSC-128, dated 1 October 1990.) The authorized communication equipment and the known replacements and add-on systems are shown in Figure 4.

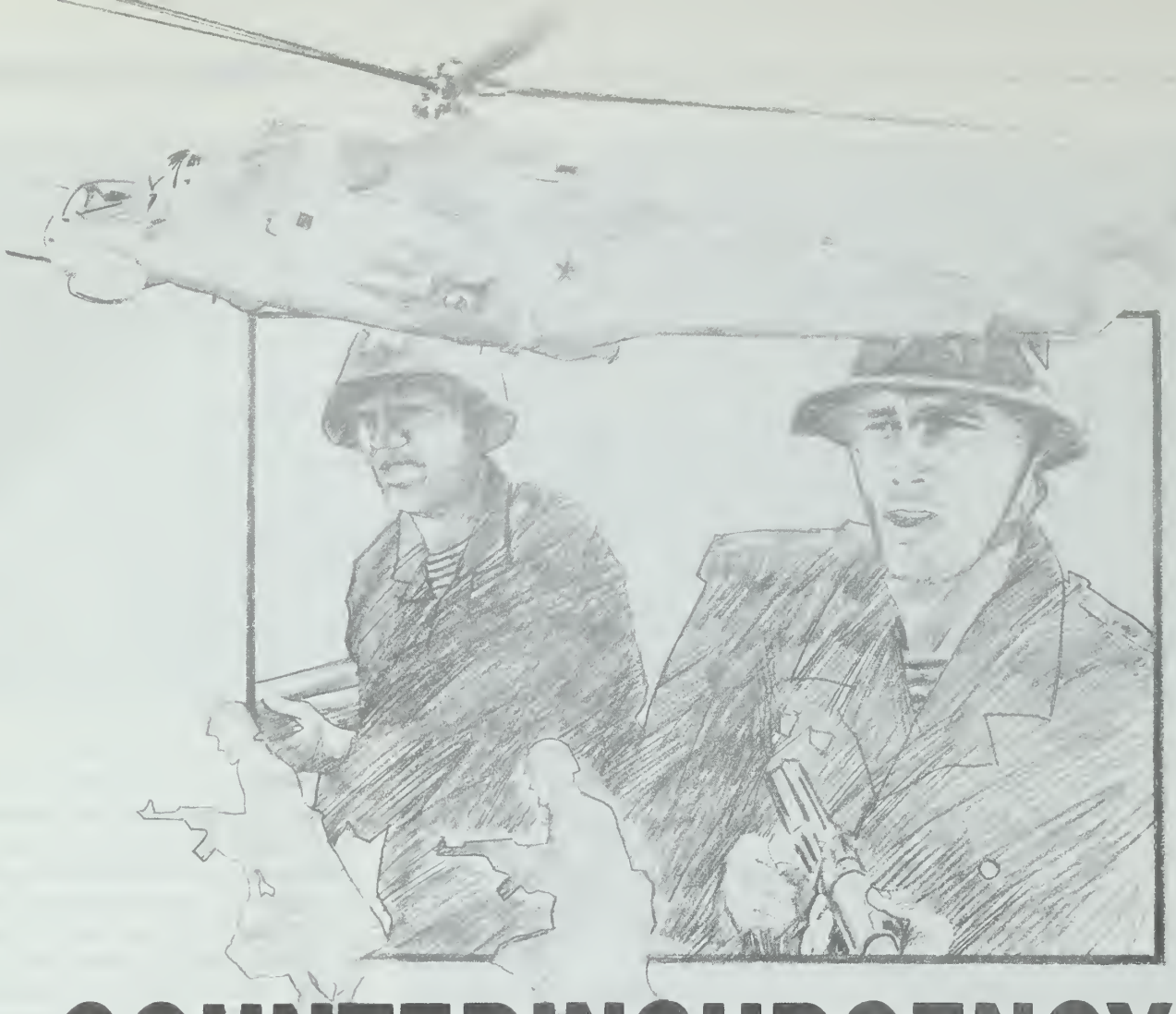
The AN/TSC-128 is an interim design, a first step toward standardizing worldwide LRSUBRS. Future modifications as a result of lessons learned and any suggestions for improvement from the field are welcome and should be sent through proper channels to Signal Officer, Company D, 4th Ranger Training Battalion, ATTN: ATSH-RBD-D, Fort Benning, GA 31905-5400; or call DSN 784-6831/6216.

The need for and the importance of battlefield intelligence in military operations has been well documented for centuries. In this era of electronics, and with the ability to rapidly gather critical real time to near-real time intelligence using current and emerging electronic assets, a commander's decision making capabilities will be greatly improved.

Operations DESERT STORM and DESERT SHIELD proved that human intelligence, combined with state-of-the-art electronic equipment, gives a commander an all-weather, day-and-night intelligence gathering capability, and a processing and dissemination means of winning battles with few friendly casualties. Long range surveillance units, with the latest technology available to them, are the HUMINT sources that can and will extend the commander's view of the AirLand Battlefield.

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COUNTERINSURGENCY AND SOVIET FORCE STRUCTURE

GRAHAM H. TURBIVILLE, JR.
MAJOR JAMES F. GEBHARDT

In prosecuting the war in Afghanistan, the Soviet Union fielded ground force units that were unique in their structure and capabilities, and that were previously unknown to Western analysts. Among the most innovative, most heavily employed, and most often effective maneuver units and groupings that appeared in that nine-year conflict were those that integrated motorized rifle, air assault, armor, and artillery subunits under a single commander, and that were supported by strong rotary (and fixed-wing) aviation resources.

In some cases, this kind of force integration was done on a provisional basis for specific actions or operations. In at least two instances, however, permanent units of this type were constituted for the most demanding counterinsurgency missions. These two units were the identically structured 66th and 70th Separate Motorized Rifle Brigades.

Although both of these units were active in the war, far more has become known about the 66th Brigade than about the 70th. From Soviet military writings, the testimony of Afghan *mujahedin* who were familiar with brigade operations, and information from Soviet soldiers who served in the unit, an overview of the 66th Brigade operations — approaches, successes, and failures — has been developed.

The organization and employment of combined arms brigades in Afghanistan remain instructive in a number of respects. Of particular interest, however, is the potential

application of the combined arms brigade model to the reorganizing of ground and security forces, because today's Soviet planners are influenced by both future external military requirements and the growing internal security demands of inter-ethnic conflict and near-civil war.

When Soviet forces began to withdraw from Afghanistan in May 1988, Western reporters were invited to observe the first departing units. One of the earliest elements to withdraw — and thus the subject of much attention — was unusual in some respects. While mounted on BTR-80 armored personnel carriers and resembling motorized rifle troops in the typical warm weather uniforms and soft-brimmed hats, the unit members also wore the blue and white striped T-shirts associated with airborne, air assault, and special operation forces. In addition, at least some of the troops wore airborne troop collar insignia.

The widely photographed column of BTRs, troops, and escorting Mi-24 attack helicopters were determined to be part of the 66th Separate Motorized Rifle Brigade, one of the most active counterinsurgency units in Afghanistan, and a unit structured and employed quite differently from standard Soviet ground units.

Soviet reports assert that the brigade was "among the first to go to the assistance of the Afghan people at the request of their government in December 1979," a suggestion that the unit was formed before or near the start of the war. At any rate, it was conducting combat actions in Afghanistan by April 1980, probably earlier. Brigade personnel were among the first to be decorated, and Western reporting in the weeks immediately following the invasion pointed to the employment of "paratroopers trained for guerrilla warfare" in an area of operations later identified as that of the 66th Brigade.

Throughout the war, the brigade was based at Samarkhel (near Jalalabad) in eastern Afghanistan, not far from the border with Pakistan. In this rugged, mountainous area with limited road movement options, Soviet units were tasked to deal with a variety of *mujahedin* activities. These included the movement of arms, supplies, and men from Pakistan on their way to points throughout Afghanistan; ambushes and attacks on Soviet and Afghan government units and supply columns; organized attacks on Soviet and government outposts and garrisons by increasingly well-equipped units; and the mining of supply and movement routes.

Geography, climate, and the types and levels of *mujahedin* activity argued for Soviet forces that included a variety of capabilities: There was a need for air and ground mobile components; for elements capable of deploying rapidly and fighting with limited support against small insurgent groupings and columns; substantial firepower in the form of artillery and armor to deal with larger, well armed forces; and strong aviation resources for local mobility and air strikes. The 66th Brigade and its associated aviation support elements constituted a Soviet effort to bring these capabilities together on more than a provisional basis.

Brigade organizations within the Soviet ground forces have always been associated with specialized functions (airborne, artillery, air defense, surface-to-surface missile, engineer); special missions and roles (assault, exploitation, and security forces); or temporary groupings of various types. Consequently, Soviet brigades have differed widely in size and composition, although, more narrowly, maneuver brigades have had a number of similarities. That is, the tank and mechanized brigades of the 1930s and the World War II era, the experimental brigades of the 1980s that were part of the now-disbanded "New Army Corps," and even the famous Soviet "combat brigade" in Cuba all constituted a mix of maneuver battalions and combat service/support units. The 66th Separate Motorized Rifle Brigade (and the 70th as well) followed this same model.

The 66th Brigade — with an overall strength of about 3,000-3,500 troops and with combat colors that signified its status as a separate line unit — was commanded by a colonel. Its maneuver components comprised five battalions — an assault landing battalion, a tank battalion, and three motorized rifle battalions. Support units included an artillery battalion, a reconnaissance battalion (essentially used as another maneuver component), and other combat and logistic support elements normally associated with a reinforced regimental grouping. The brigade's counterinsurgency role required the integration and grouping of maneuver and support elements in ways not previously seen at this tactical level, and resulted in an organization that was fundamentally different from the standard maneuver units in respect to its employment.

WEAPONS AND EQUIPMENT

The brigade's weapons and equipment included a range of standard (including the latest) light arms and major end items as well as some non-standard equipment. The motorized rifle battalions were equipped predominately with BTR wheeled armored personnel carriers. These included modified BTR-70s with additional firing ports and improved mounts for machineguns to fire at overlooking heights and the newer BTR-80s. BMP infantry fighting vehicles were also found in the brigade. These included BMP-2 models with 30mm cannon (excellent for firing at elevated ground targets), which the unit was reportedly among the first to receive.

Among fire support assets specifically reported to be in the brigade were 82mm "Vasilek" automatic mortars and 30mm AGS-17 automatic grenade launchers, with 120mm mortars also likely. Photographs taken by a member of the unit indicated that the brigade also had AT-4 SPIGOT antitank guided missiles (ATGMs) in at least the manpack version. These assets — mortars, automatic grenade launchers, and ATGMs — were held within battalions and allocated to tailored combat groupings. In addition to standard squad machineguns and antitank grenade launchers (RPGs), personnel weapons within the brigade included 5.45mm assault rifles, both fixed (AK-74) and folding stock (AKS-74) variants, and SVD 7.62mm sniper rifles in higher

than usual numbers. Night vision equipment was also said to be in very good supply. Various kinds of demolition equipment and explosives were standard items as well.

The brigade's tank battalion, which was not employed in many of the brigade's combat actions, is presumed to have had the standard 40 tanks found in the tank battalions of motorized rifle regiments. Many tank units in Afghanistan were equipped with older medium tanks (the T-62 or even T-54/55 models, for example), and this may have been the case for the brigade's tank battalion. According to the memory of one Afghan resistance fighter, however, the battalion was equipped with T-72 medium tanks.

The brigade's artillery battalion was reported to be equipped with 122mm D-30 howitzers. Additional artillery fire support for the brigade was provided by 16-tube 22mm *Uragan* (Hurricane) multiple rocket launchers (40-kilometer range) garrisoned in the brigade's area of operations. One former *mujahedin* commander believed these multiple rocket launchers were under the brigade's operational control but were not organic assets. One former brigade member believed that 122mm multiple rocket launchers also supported the brigade.

Helicopter aviation support for the brigade was provided principally by the Mi-24s Hinds and Mi-8 Hips of a helicopter unit stationed in the same area. So close was the relationship between the brigade and its helicopter support unit that one brigade officer believed the helicopters were subordinate brigade assets. At least, these helicopters provided habitual fire and transport support (as well as command and control platforms) while the brigade operated in its main area of responsibility. When the brigade was committed to another area, aviation support was provided by other units. The brigade also received fire support from fixed wing strike aircraft in some actions. At one point in the war, a four-engine An-12 turboprop flew intelligence collection missions on behalf of the brigade. According to a brigade officer who flew on the aircraft, it contained "listeners" (presumably intercepting *mujahedin* tactical radio communications or using other sensor equipment) who located *mujahedin* units and targets.

LESS SATISFACTORY

While the brigade was equipped with high-quality major end items, light infantry weapons, and some special equipment, the quality of basic uniform items and associated gear was less satisfactory. Former brigade officers reported that soldiers used their own money to buy footgear suitable for the mountains and that some uniform items wore out long before replacement items were received. Soviet load bearing equipment required too much to be carried at the waist — ammunition, grenades, entrenching tools — and there was a lack of vests to take part of the load. This factor alone was said to reduce personnel agility on missions and to increase discomfort.

Attention to the quality and the training of brigade personnel clearly increased as the war continued and as shortfalls in personnel performance became apparent. Former brigade officers noted that typical training did not correspond to the requirements levied on the troops. Specifically cited were low proficiency among specialists, low tactical proficiency of "junior commanders and officers," and overall poor physical conditioning for mountain operations. The introduction of poorly prepared soldiers into units requiring high levels of military competence was a problem that no doubt contributed to the substantial number of casualties the brigade suffered at times. As a consequence, efforts were made to select better personnel from the conscript pool for elite units like the 66th Brigade and to provide them with general and specialty training in the USSR before sending them to Afghanistan.

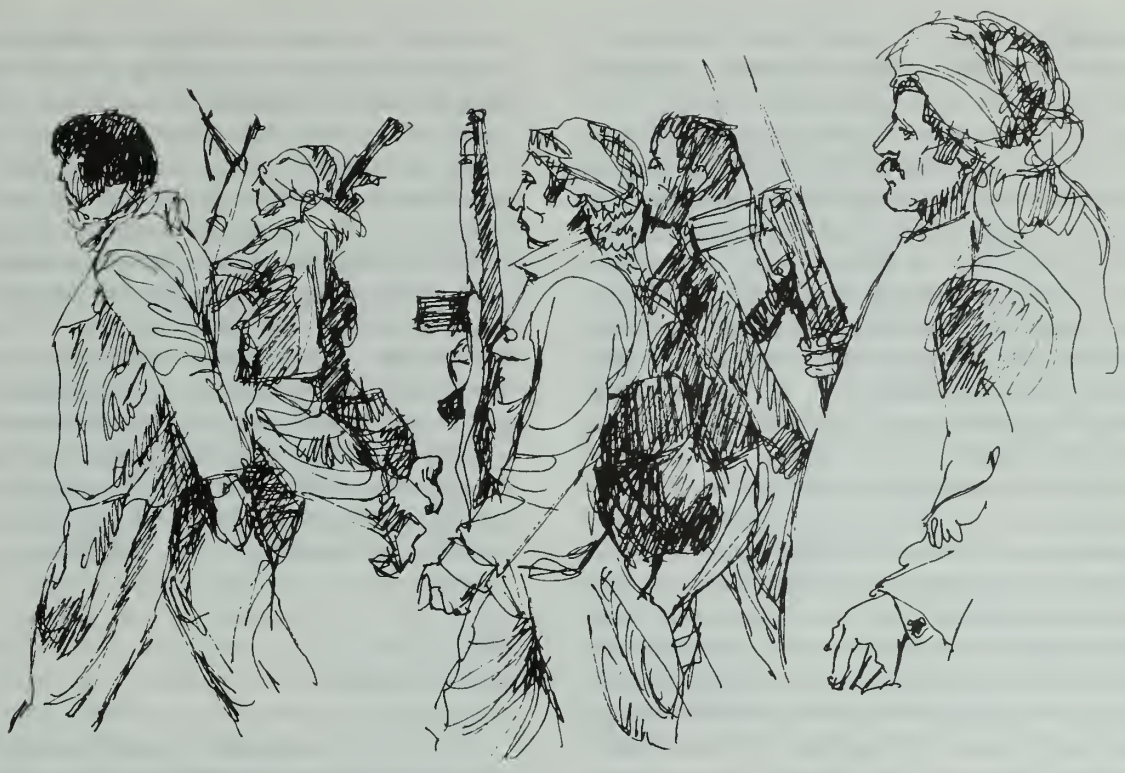
SENIOR OFFICERS

Some of the more senior brigade officers appear to have been effective in their positions. These include the colonel believed to be the unit's first commander in Afghanistan, then-Colonel V. V. Kolesnik, who was awarded the title "Hero of the Soviet Union" (equivalent to the U.S. Congressional Medal of Honor) in the early days of the war. When the brigade withdrew from Afghanistan, it was commanded by a Colonel Yuriy Timofeyevich Starov, who had been decorated with the Order of the Red Star as well as the Afghan Order of the Red Banner. Starov was given the kind of publicity usually associated with highly regarded officers. One Soviet junior officer who served before the brigade's withdrawal spoke of the confidence he had in the brigade's leadership, particularly the brigade commander (possibly Starov), whom he said he would gladly follow into battle.

A number of other brigade officers — including a lieutenant who became a Hero of the Soviet Union posthumously — appear to have been motivated, well-trained, and competent, and to have maintained cohesive subunits. This was clearly the case, for example, in the reconnaissance battalion (perhaps the best subunit in the brigade), where many or all officers were airborne qualified and seemed to regard their subordinates with genuine pride and affection.

There are clearly other views. One brigade soldier — who defected to the *mujahedin* — described cynical, uncaring officers; ethnic tensions; the hazing of young soldiers by more senior conscripts (an enduring problem known as *dedovshchina*); poor health care, bad food, drunkenness, and drug use; and mindless acts of brutality directed against the Afghan people. Such conditions have been raised more generally by many Soviet soldiers who served in Afghanistan, and no doubt were associated with the 66th Brigade as well. But the *extent* to which they manifested themselves within the brigade is far from clear.

Brigade personnel — officers and other troops — were highly decorated, a distinction that Soviet assessments



highlight as an important measure of unit performance. Perhaps the best insight into unit performance, however, is provided by snapshots of the brigade's employment over more than eight years of combat in Afghanistan.

The 66th Brigade was tasked to conduct special counterinsurgency actions near Afghanistan's border with Pakistan (a border that one brigade officer said they sometimes violated). The brigade's main area of operation was in Nangarhar and Kunarha Provinces, including the 170-kilometer-long Kunar Valley, where much heavy and difficult fighting took place.

The 66th Brigade was capable of operating on a multi-company and multi-battalion scale, as well as in the far more numerous actions involving small, tailored force groupings. As a consequence, brigade missions included large scale sweeps in conjunction with other ground and air units (both Afghan government and Soviet); "punitive" expeditions against villages and populated areas; assaults on *mujahedin* strongpoints and supply bases; and day and night ambushes of *mujahedin* groups, particularly the interception of caravans believed to be carrying insurgent arms and equipment. When the brigade participated in periodic large-scale offensive operations and sweeps, such as those carried out on a number of occasions in the Kunar Valley, the combined arms composition of the brigade was most fully evident. This was particularly notable in regard to armored elements of the brigade — tanks, armored personnel carriers (BTRs), and infantry combat vehicles (BMPs) — which in other brigade actions played limited roles or did not participate at all.

The combat actions that became the brigade's specialty, however, were those that involved tailored groupings of battalion size or smaller, directed at *mujahedin* targets in the rugged, remote areas of eastern Afghanistan where isolation from main forces was the norm. In this role, standard organizational delineations — brigade, battalion, and company — lost the relevance they have in more traditional operations.

The brigade's allocation of combat resources was based on the routine establishment of non-TOE groupings or subunits. These comprised "detachments," "groups" (a number of which were formed within each detachment), and "armored groups" (also formed within a detachment). These groupings — particularly the detachments — appear to have gained an identity of their own that outlasted the war. Long after the 66th Brigade had withdrawn, for example, former officers with the unit were still referred to as "detachment" or "group" commanders rather than as leaders of a standard subunit like the company.

Detachments in the brigade were typically led by majors. Their size — in terms of manpower and resources — appeared to range between that of a reinforced company and a tailored battalion. These detachments could include infantry, armor, artillery, engineer, and other elements tailored and grouped in ways designed to increase their mobility. They were supported by the firepower resources of a senior commander, and they were tasked to operate with speed and surprise against enemy objectives and forces in relative isolation from the main forces.

The detachments organized their combat power into tailored groups, typically consisting of about 20 to 30 men. Detachments, and possibly their deployed groups as well, were given code names based on jewels or minerals — diamond, opal, and the like — a common practice for Soviet

special operations forces. A group would normally be commanded by a captain or a senior lieutenant, and several groups might take part in an action.

A group — whose exact composition depended on its mission — was built around a platoon size infantry or assault landing element, reinforced by sappers (to clear mines and blow targets), and signal support. A group might be divided into teams (or subgroups) of perhaps eight to ten men to accomplish specific assignments or missions, as in a raid or ambush. Mortars and manpack antitank guided missiles could be included, though some missions clearly emphasized mobility over firepower. Although a number of brigade personnel were parachute qualified, and while armored transporters were organic to the brigade, the terrain and target requirements in Kunarha and Nangarhar Provinces saw groups inserted principally by helicopter or on foot.

An armored group, several of which might be formed within a detachment, consisted of BTRs, BMPs, or tanks — without accompanying infantry — which were tasked to support and reinforce deployed strike groups and carry out separate missions. Their direct employment depended on access routes to engagement areas, which often ranged from poor to nonexistent. When possible, however, armored groups provided fire support for deployed troops, covered their insertion or withdrawal, and blocked enemy routes to and from landing or engagement areas. Armor, of course, was employed also with mounted and dismounted infantry in punitive operations against villages and populated points believed to be centers of *mujahedin* activity, and to guard roads and facilities in the brigade's area of operations.

Artillery support was provided for deployed detachments and groups by firebases formed from the brigade's organic 122mm D-30 howitzers and supporting multiple rocket launchers (220mm and possibly 122mm systems). Both fixed and temporary firebases were established for this purpose. In some cases, D-30s were lifted beneath helicopters to remote firing sites.

BRIGADE GROUP

In some cases, a brigade group might walk to an objective 20 to 30 kilometers into the mountains. When groups were inserted by Mi-8 helicopter (an increasingly risky undertaking as the *mujahedin* acquired more experience and more sophisticated antiaircraft systems), emphasis was placed on speed. A former brigade officer indicated that helicopters departed immediately after landing the troops, before the aircraft could be targeted by *mujahedin* mortars. Groups and teams would typically walk out to the helicopter landing zones located away from target areas or withdraw entirely over land.

Resupply was never certain and was a particular concern to brigade members when detachments and groups were being supported by unfamiliar helicopter units. Bad weather or restrictive terrain sometimes prevented aerial resupply or medical evacuation. Most often, though, these problems were said to occur when brigade elements were being supported by a "strange" helicopter unit. Consequently, 66th Brigade soldiers operating in the mountains typically carried loads of "no less than 30-40 kilograms," consisting of ammunition, water, rations, medical supplies, batteries for radios and night vision devices, and so on. Each soldier usually took 9 or 10 loaded assault rifle magazines. Even with this load, subunits sometimes expended most of their ammunition in the first engagement and had little left for a second or third encounter.

Two of the most frequent missions assigned to the brigade were assaults on insurgent strongholds to destroy *mujahedin* groups and supplies, and the ambush of caravans carrying supplies from Pakistan and *mujahedin* groups known to be operating in a given area or in transit to or from an operation. Several examples of specific brigade actions that are known collectively give some insight into typical brigade combat actions.

ASSAULT GROUP

Typically, an assault group tasked to destroy an insurgent base area or stronghold would land by helicopter in the rear of or on terrain above a target, attack it with speed and surprise, photograph the stockpiled equipment and supplies, and destroy them with explosives. Air strikes by combat helicopters and fixed wing aircraft were sometimes a part of these actions. In some cases, brigade reconnaissance elements were tasked to kill sentries silently and to neutralize antiaircraft machinegun positions before an assault took place.

The insurgent base areas, in some cases at least, were well established, with a system of trenches, well-sited firing positions covering key approaches, and observation points intended to give early warning of enemy movement in the area. One such village stronghold was effectively defended against a motorized rifle unit for two weeks, but a heliborne assault force from the 66th Brigade managed to secure it in a matter of hours by conducting an airmobile insertion right on top of the village. The assault force relied on surprise and shock, quickly destroyed the captured supplies and weapons with explosives, and left the area. Before assaulting the village, brigade personnel established blocking points in the rear of the stronghold and on its flanks to prevent the insurgents from escaping or being reinforced.

In another action, an effort was made to rescue Soviet prisoners. Troops from the reconnaissance battalion were to land by helicopter and inflict a surprise strike on a small mountain settlement where the prisoners were held. Although the troops were said to have executed the mission successfully, they found the Soviet prisoners dead and mutilated.

When possible, the brigade's ambushes were carefully planned and could involve days of waiting along the potential movement routes. According to a former brigade reconnaissance officer, ambushes were most often conducted at night.

After reaching the general target area and selecting an ambush site, the men of the group or team would wait in camouflaged positions for the *mujahedin* force or caravan to arrive. When the insurgents did appear, the ambush force would seek to destroy it with an overwhelming volume of fire. The ambush force would then withdraw over preplanned routes.

In some instances, ambushes were set hastily in response to new intelligence. In this regard, one ambush effort began with the receipt of intelligence about a large pack animal caravan — about 200 pack animals and at least 300 men — moving from Pakistan. A 20-man group under a senior lieutenant was landed by helicopter on the crest of a hill in the caravan's projected path. The lieutenant intended to pin down the large caravan with fire until reinforcements arrived, but his small group quickly became engaged beyond its capacity to defend, and the group's detachment commander decided to send reinforcements.

Another 20-man group, accompanied by a major, was sent by helicopter to the engagement site. It took fire upon landing and found the senior lieutenant wounded, the area under *mujahedin* sniper fire, attacks on the hill under way, and an effort to attack from the rear in progress.

The two groups managed to stabilize the defense, while in the meantime the detachment commander dispatched "several" armored groups to the area. Combat helicopters provided fire support while artillery fire strikes were also carried out. The battle, said to be a long one, was successfully concluded — with the capture of the caravan — through the combined action of the assault landing groups, armored groups, combat helicopter support, and artillery fires.

AMBUSHES

Other efforts to interdict *mujahedin* groups and caravans ended less successfully with the hunters falling into an ambush themselves. In one 1985 action, for example, a company size force was tasked to respond to a *mujahedin* attack on a convoy in Kunarha Province. A reconnaissance group under a lieutenant was detached from this main force to help locate the insurgent group. As the reconnaissance group moved by mountain trail into the village of Ashkabad, it was ambushed and encircled, with some men in the group wounded.

The main force also fell into an ambush. According to Soviet materials, the lieutenant ordered most of his group to attempt a breakout with the wounded to the main force while he and two other soldiers covered their withdrawal. He and his two subordinates moved from building to building until they reached the edge of the village. At this point, he was wounded and unable to move further. He is said to have continued to fight until he ran out of ammunition, at which point he blew himself and the attacking *mujahedin* up with his last hand grenade, and was posthumously named a Hero of the Soviet Union.

Such incidents as these underscore the kind of environment in which the 66th Brigade operated. Brigade elements frequently operated in isolated groups and always ran the risk of being overrun by superior or more skillful forces. This put a premium on reconnaissance, on planning and execution by detachments and groups, and on the development of air support, artillery support, and rapid reinforcement by air or ground for units operating in isolation.

The last major brigade action in Afghanistan was its withdrawal in the spring of 1988. This carefully planned and executed undertaking took place over several days in mid-May. During the road march of more than 660 kilometers, at least three *mujahedin* attacks on the departing columns took place before the brigade crossed the Amu Darya River into the Soviet Turkestan Military District, ending the unit's long role in the war.

When the withdrawal of the remaining regular Soviet units from Afghanistan was completed in February 1989, the disposition of these units — and the earlier-withdrawn 66th Brigade — was not announced publicly. Nevertheless, the 66th Brigade remains an instructive model for Soviet force planners and may still have a place in the Soviet order of battle despite the sweeping reductions and reorganizations under way.

COMBAT RECORD

A distinguished combat record such as that of the brigade has long been one of the Soviet criteria for retaining a unit in active status. In addition, the brigade's long tenure in Afghanistan points to Soviet satisfaction with its organization, capabilities, and performance, while the continued attention given to former brigade officers in the military press — speaking proudly and bitterly about Afghanistan and the Army's current situation — seems to further validate the unit's achievements as being "still relevant."

Clearly, a combined arms brigade structure is applicable to a conventional battlefield. A unit such as the 66th — placing, as it does, greater emphasis on air mobility and rapid maneuver than do heavier force structure variants — may in some respects correspond to emerging Soviet concepts of "fragmented" or non-linear combat. Under this concept, greater emphasis is placed on employing tailored, independent combined arms tactical units and groupings. A brigade with a mix of motorized infantry, air assault, armor, and artillery assets that can be tailored into combined arms detachments, may find a place in a force structure intended to execute these kinds of operations. Such a model may be particularly attractive for a greatly reduced force structure, further limited by a combination of conventional arms ceilings, economic constraints, and changed military requirements.

The brigade clearly played an integral role in the larger operations in the Afghan war, as well as in smaller actions. For example, senior Soviet officers have identified as

particularly successful the 1985 Kunar Valley operation — which took place over the 170 kilometers from Jalalabad to Barikowt. This coordinated series of actions, aimed at destroying insurgent bases and groups, eventually involved the landing of 11,000 troops from helicopters. During the operation, the 66th Brigade operated jointly with other Soviet forces and Afghan units.

Such innovations as the armored groups used by the brigade in Afghanistan are being more generally applied now in offensive and defensive exercises and discussed in the most recent Soviet military literature. The problem of supporting or reinforcing infantry units introduced by air assault or other means, with armored groups advancing on separate axes, was key to a number of 66th Brigade actions.

Other approaches associated with combat action of a "fragmented character" have been highlighted as important lessons learned from Afghanistan that should be broadly studied for their application to warfighting generally. These include, among others, the coordination of air and artillery fire support for small groupings operating in isolation from main forces, and the rapid preparation and delivery of substantial assault landing forces to enemy-held areas. All of these and other basic tactical and special operations skills were integral to brigade operations.

The brigade model may also be reflected in future Soviet force structure innovations designed to deal with inter-ethnic conflict and other internal security tasks — forms of unconventional warfare that have suggested Afghan war analogies to some Soviet commentators. In such areas as Georgia, Armenia, and Azerbaidzhan — where heavily armed groups clash with central Soviet authority and each other in both urban and rugged rural settings — requirements for mobile ground forces backed up by substantial firepower have been evident for some time. One Soviet commentator has suggested that these circumstances approximate U.S. concepts of "low intensity conflict (LIC)," and take note of the specialized forces created in the U.S. to deal with a complex mixture of military and civil problems in some LIC environments.

The creation of a tailored brigade-size force to deal with the more serious forms of internal conflict has already taken place in the Soviet Union — but not under Soviet central control. Rather, the new formation was set up under the auspices of the Armenian Republic, whose assertions of autonomy and involvement in some of the most violent inter-ethnic clashes with neighboring Azerbaidzhan have made it a major Soviet internal security concern. More specifically, in November 1990, the Armenian Ministry of Internal Affairs (MVD) announced the establishment of a new unit referred to as a "Militia Detachment of Operational Response" (or OMOR in the Russian acronym).

The unit was to be assigned such internal security tasks as ensuring public safety, dealing with armed criminal groups and groupings, and protecting government facilities and the republic's leaders. The organization of the OMOR, however, resembled the 66th Brigade model far more than it did a reinforced militia or police unit. It was said to consist of a landing assault battalion, two motorized patrol battalions, an armored patrol battalion, and various support units, including motor transport, firefighting, and sniffer dog companies, and it was being manned by former airborne, naval infantry, and KGB Border Troop or MVD Internal Troop special designation (*spetsnaz*) detachments. Though smaller than the combined arms brigades in Afghanistan, the 1,000-man OMOR was evidently based on the same need to combine battalions for mobility and firepower in unconventional warfare environments.

In May 1991, one OMOR role was highlighted. Soviet MVD internal troops, attempting to halt armed clashes between Armenians and Azeris and being hotly engaged themselves, reportedly detained opposing Armenian forces that turned out to be OMOR elements. They were well equipped with automatic weapons, tactical radios, pistols, eight boxes of ammunition, signal flares, and "special means," a term used to describe equipment issued to special operations forces (flash-bang grenades, for example). It would seem, then, that unconventional warfare experience and force structure models will not be limited to forces under central Soviet control — nor will future force structure innovations appearing in the USSR be formulated entirely on a perceived "external" threat.

In conclusion, future Soviet ground (or security) force structure may or may not include combined arms brigades like the 66th. The continuing debate over what kind of armed forces are needed and the many other factors that will shape the decisions that are made, will become visible in the months ahead. Clearly, though, the structure and employment of the 66th Brigade in Afghanistan continue to offer lessons to Soviet planners, and perhaps to dissident republics as well. Given the range of security requirements the Soviets face, at least some of these lessons are likely to be applied in the ground force structure that will emerge in the 1990s.

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OPERATIONS in an NBC ENVIRONMENT

ROY D. WILLIAMS II

As events over the past year in the Persian Gulf have shown, a Third World nation can present a very real NBC (nuclear, biological, chemical) threat. For our military services, just being able to survive such a threat is not enough. The evolving AirLand Battle-Future doctrine requires that they also be prepared to operate in an NBC environment. The leaders who must accomplish their missions in this environment must therefore have some understanding of the organization, doctrinal tenets, and tasks that are required for both survival and sustainment.

The experience of some U.S. forces in World War I demonstrate this problem. Although the major agents and delivery systems that would be used had already been introduced by the time a substantial number of U.S. forces entered the war, those forces still were not prepared for chemical warfare. On 25 February 1918, elements of the American Expeditionary Force suffered 95 percent casualties after being struck by a German projector attack using phosgene and chloropicrin. This gas attack was no different from those that had become commonplace on the Western Front. Most of the U.S. casualties in that attack (75 percent) were attributed to the soldiers' unmasking before they had received orders to do so.

A recently completed study of unit performance at our combat training centers in 1989 and 1990 also identified unmasking procedures as one of the major training deficiencies. While the units are much better now than they were, problems still exist, and in an NBC environment, there is little or no margin for error.

Since chemical agents had been used earlier in the region, the U.S. soldiers deployed to Southwest Asia during Operations DESERT STORM and DESERT SHIELD were equipped and trained to operate on a contaminated battlefield. Nevertheless, proactive chemical units continue to be needed more than ever.

The basic framework of the Chemical branch is built around two major elements. First, technical expertise and individual organizational equipment is integrated into all other units to permit them to continue to operate with little degradation. Second, chemical units are placed at division level and higher to provide NBC reconnaissance, decontamination, and smoke support. Both elements are critical — the first allows a unit to make the most of its operational effectiveness, the second augments and reinforces its combat power and sustainability.

LOCATION

Chemical units are located at regiment, separate brigade, division, corps, and theater army levels. Only 32 percent of our Chemical officers and NCOs are found within those TOEs (tables of organization and equipment); the other 68 percent are assigned to positions in non-chemical units.

The chemical personnel in these other units are trained to integrate their professional knowledge into a unit's operational planning and to offer a commander sound recommendations for solving complex problems.

The basic functions of the Chemical branch are:

- To manage an AirLand Battlefield that has been contaminated by nuclear, biological, or chemical weapons.
- To provide NBC defense through the avoidance of contamination, protection from contamination, and decontamination.
- To conduct smoke operations.
- To integrate flame weapons and systems into offensive and defensive operations.
- To plan for retaliating against an enemy if he uses NBC weapons (at division and higher levels).

One chemical sergeant is authorized to carry out these functions at company level. He is the company commander's principal NBC defense trainer and advisor on NBC defense operations and NBC equipment. Each company in the Army must be able to survive an NBC attack, report its status and the condition of the area in which it is located, clean itself of contamination (which may require the support of a chemical unit), and resume its mission. If a company becomes totally immersed in these NBC tasks, then the enemy has succeeded in keeping that company from performing its mission.

The company Chemical NCO is concerned with the way the company organizes itself for NBC defense, positions its alarms and detectors, reacts to attacks and warnings of attacks, disseminates attack warnings, and reestablishes its operational capability after an NBC attack. This NCO must also help to integrate NBC into the company's operational planning.

During wartime, the Chemical NCO is located where he can best keep the company commander advised — in the command post or the commander's vehicle. This NCO constantly tracks the situation, analyzing company dispositions, consolidating spot reports, and recommending ways to avoid contamination. He recommends such protective measures as the positioning or repositioning of the unit's chemical agent alarm system, mask filter changes, and MOPP levels as a result of his MOPP analysis. He stores the wind information he receives so that simplified fallout predictions and downwind hazard information can be computed rapidly.

HAZARDS

Monitoring for NBC hazards is a company responsibility and is conducted along with its other operations. The Chemical NCO recommends which soldiers should be trained to perform these functions and, with the concurrence of the commander, trains them, checks to see that they properly monitor for NBC hazards, and that they report their information accurately using the NBC Warning and Reporting System (NBCWRS). He also records the time spent in MOPP 4 and the radiation status of the platoons. In brief, the chemical NCO provides technical information in a form that the company commander can use to make his tactical decisions.

When a company is directly affected by NBC weapons, it must immediately report its status (using the NBCWRS). The Chemical NCO must become involved so that he can then quickly and accurately assess the damage and report that assessment. The objective is to restore the company as quickly as possible without having the soldiers encumbered with MOPP gear. If decontamination is necessary, everyone should have been trained on the basic skills, and each leader prepared to lead MOPP gear exchange



or to process through a vehicle washdown.

A hasty decontamination requires quick action to decrease the contamination levels. Contaminated vehicles and critical items of equipment must be identified, decontamination priorities established, and coordination made with the battalion to ensure that vehicles are promptly washed down. The squad leaders direct their soldiers in conducting MOPP gear exchange while the Chemical NCO coordinates the overall operation.

Deliberate decontamination is a joint operation with the supporting chemical decontamination unit. When a decision is made to conduct deliberate decontamination, a company must stand down for reconstitution. The company itself sets up and runs a detailed troop decontamination operation. The Chemical NCO controls this operation and coordinates with the supporting chemical decontamination unit, which will provide the necessary detailed decontamination equipment. The company must augment the equipment decontamination unit if necessary. The decontamination unit leader controls the operation.

A company Chemical NCO also assesses and recommends unit training requirements, checks the condition of individual and company NBC defense equipment, and prepares company NBC SOPs (standing operating procedures).

During peacetime he concentrates on training the unit's leaders, working to ensure that each leader sustains his proficiency in the higher skill level common tasks in STP 21-24. These tasks involve reacting to an NBC situation (leading MOPP gear exchange, for example) or gathering information that may affect future operations (using an IM174 radiacmeter). Each leader, in turn, is then responsible for sustaining his soldiers' proficiency on the individual NBC survival tasks in the Soldier's Manual of Common Tasks (STP 21-1).

Normally, company NBC equipment is assigned as prescribed in its MTOE. Under some conditions, a company may centralize the maintenance of equipment in an NBC room, but the responsibility for performing and supervising maintenance still resides with the element designated by the MTOE.

The Chemical NCO has the knowledge and ability to deal with such potential problems as the radioactive source on the M8Al chemical agent alarm system, and he is also the one best qualified to initially size an individual soldier's protective mask. A commander, by using the chemical NCO's abilities, and a little banana oil, can ensure that each of his soldiers has a mask that fits. (A protective mask fit validation system is being developed to make this process easier.)

For a company, NBC readiness also means being able to perform the company's mission under NBC conditions. The soldiers must survive the initial encounter and then reestablish themselves as a functioning entity while wearing MOPP 4 protective gear. The Chemical NCO can integrate realistic NBC situations into collective training events so that the company is prepared to survive and operate under NBC conditions. A company that has a truly high degree of NBC readiness does not have any NBC tasks on its training schedule, but it shows NBC as a condition for performing the tasks on its mission essential task list (METL).

Too often company NBC SOPs only rehash what has already been standardized in the Soldier's Manuals of Common Tasks (STP 21-1 and 21-24). To avoid redundancy, a unit SOP should not address such topics as filling out

NBC-1 reports and using M256 kits, but should focus on the critical elements that are relevant to that unit. The company SOP should state how operational procedures are performed differently in a contaminated environment and should identify any tasks that will be deferred or delayed until the contaminated area is cleared. SOPs should describe modifications to procedures and ensure that everybody in the company knows them. When a company can use its SOPs in conjunction with drills, it is approaching NBC readiness. Some iterations of standard drills must be trained in MOPP 4.

At battalion level, the infrastructure consists of a chemical officer (BC 74), who is the assistant S-3, and a chemical NCO (a staff sergeant, MOS 54B, in maneuver units or a sergeant first class, MOS 54B, in other units).

A battalion is also authorized an NBC specialist who trains and supervises a decontamination crew from the battalion. This crew uses the lightweight decontamination system (LDS) located in the headquarters company to perform hasty decontamination. Radiological and chemical surveys and biological sampling are planned and controlled at this level.

The primary purpose of this infrastructure is much the same as that at company level — the chemical personnel advise the commander and train the battalion to survive and operate under NBC conditions on the AirLand Battlefield. They work with the companies to assess and recommend training requirements, to manage the maintenance of NBC equipment, and to integrate SOPs into workable procedures. Throughout this process, they also train the units to standard on their collective tasks and the individuals on their common and branch specific tasks.

Some of the ways in which chemical staff personnel work with the members of the battalion staff are as follows:

S-1. Planning for NBC casualties; providing administrative support in a contaminated area; recording radiation exposure status.

S-2. Incorporating threat NBC capability into the intelligence preparation of the battlefield process and projecting likely enemy courses of action; providing for NBC reconnaissance in the reconnaissance and surveillance (R&S) plan; predicting the effects of enemy NBC weapons.

S-3. Recommending MOPP levels; deploying units to minimize NBC effects; planning for and controlling chemical units attached to the battalion or under its operational control; analyzing unit level NBC reports; requesting smoke and flame support.

S-4. Estimating MOPP gear and decontamination requirements; preparing area damage control plans; resupplying NBC equipment.

All. Incorporating NBC considerations into planning; modifying plans and orders based on the NBC situation; facilitating operations using smoke and flame.

Critical NBC decisions are made at battalion or task force level. If a company reports an NBC attack, for example, they immediately begin to determine what the soldiers can do while wearing their MOPP gear, whether decontamination will be required, when and where it will be conducted, and how the contaminated unit will link up with the task force's decontamination team.

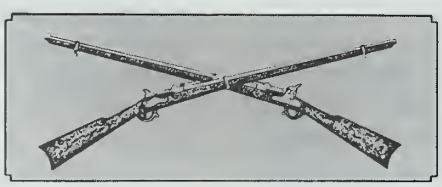
At brigade level, a chemical officer (a captain) and NCO (a sergeant first class) perform the same kinds of functions and also help plan the employment of chemical and nuclear weapons when such employment is authorized. They gather information from the brigade's entire sector and assess which NBC attacks will affect the brigade's current and future battle.

At division level and above, a chemical staff section under a lieutenant colonel (or at corps level, a colonel) mans an NBC center (NBCC) 24 hours a day. The center receives, collates, evaluates, prepares, and distributes NBC reports; maintains the subordinate units' radiation dose status and the time their soldiers have spent in MOPP 4; and prepares wind vector plots, detailed fallout predictions, chemical downwind hazard predictions, and vulnerability analyses; and manages the NBC Warning and Reporting System.

Additionally, the chemical section performs all the staff functions previously discussed and conducts retaliation planning with the fire support element to produce nuclear and chemical fire support plans. Other actions include working with the G-4/DMMC concerning NBC supplies and equipment; exercising operational control over assigned or attached chemical units; and working with the G-5, when necessary, to mitigate the effects of NBC weapons on civilian personnel and integrate host nation NBC reports.

Today's chemical officers and NCOs stand ready to assist the Army's maneuver elements in carrying out their missions on the battlefield of the future.

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In Defense of the LENSATIC COMPASS

NOEL J. HOTCHKISS

As is the case with all kinds of equipment our armed forces use, there is often lively discussion about which type of magnetic compass best meets the needs of military land navigators. These arguments generally call for either the retention of the lensatic compass or the adoption of a protractor-type compass similar to those generally available to outdoor enthusiasts on the civilian market.

Before deciding which design is superior, we must carefully consider the rugged conditions under which direction finding equipment is used on the battlefield and the varied requirements it must meet. We must also thoroughly review the strengths and weaknesses associated with each of these two types of compasses. I believe that after such an examination, it will be obvious that the lensatic compass presently in service is the most useful and dependable for cross country movement.

The magnetic compass issued to military personnel to help guide their movements and determine their positions must perform a wide range of functions under less than ideal conditions. The following requirements must be considered when deciding which compass is best for Army land navigation:

Temperature Ranges. Soldiers may be called upon to operate and navigate during any season and in any geographic or climatic region of the world. Thus, a military compass must continue to operate accurately when exposed to a wide range of temperatures.

Compass makers learned long ago that placing a pivoted magnetic compass needle in liquid helped to stabilize it, thereby allowing quicker, more accurate directional readings to be taken. Thus, the term *damping* became associated with the magnetic compass.

The protractor-type compass still uses a clear liquid for damping, because the user can see through the instrument to view the orienting arrow and lines printed on the base. This transparent quality is necessary for taking directional readings in the field and when using the compass as a protractor on the map. The problem is that liquid-damped compasses, when compared with the more advanced copper induction damping system designed into the modern lensatic compass, have a severely limited range of operating temperatures.

STABILIZING

Manufacturers of the liquid-damped protractor compass say that the compass will stabilize within four seconds and will operate properly within a temperature range of -40 to +120 degrees Fahrenheit. On the other hand, the lensatic compass meets military specifications for stabilizing the compass needle in less than six seconds, and it will operate properly over a temperature range of -50 to +160 degrees. This range is 50 degrees greater than that of the protractor compass.

Before the copper induction damping system was developed, a leak in the liquid damping capsule was the most common cause of compass failure. Leaking seals on these capsules resulted either from rough handling or, more commonly, from being placed in temperatures either lower or higher than the designed limits during use, transport, or storage. Liquids expand rapidly, of course, at the freezing point and whenever heat is applied.

The manufacturer of one protractor-type compass includes the following cautions in its instruction manual:

Bubbles larger than 1/4-inch diameter should be viewed with suspicion and probably are caused by a leaking capsule ... Do not lay your compass near a radiator or where temperature can become extreme, such as on a pavement in the sun. The expanding liquid may damage the capsule.

Given the fact that military compasses are often carried and stored in dark-colored containers and placed in the sun, upper temperature limits of only 120 degrees will be difficult to avoid during the summer season in many parts of the world. It is unlikely that the soldiers who participated in Operation DESERT STORM could have protected protractor-type compasses from the excessive heat.

Accuracy. Accurate magnetic compass readings are often crucial for guiding military movements and generally are needed to determine positions precisely. Maintaining an accurate sense of direction and knowing where you are (position fixing) are essential to successful land navigation as well as to the effective employment of direct and indirect fire, tactical air support, and medical evacuation. They are also necessary for valid target acquisition; accurate reporting of nuclear, biological, and chemical (NBC) contamination and various danger areas; and obtaining emergency resupply. Few factors contribute as much to the survivability of troops and equipment and to the successful accomplishment of a mission as soldiers who know direction and their own location.

SIGHTING

Those who argue in favor of adopting a protractor-type compass will grant that sighting with a base-plate protractor compass is not as accurate as sighting with a lensatic compass. They do maintain, however, that it is accurate enough for field work.

There is no question that under ideal conditions when soldiers are moving easily and quickly from one area to another using terrain association backed up by rough compass checks, the degree of accuracy the base-plate protractor compass provides is satisfactory. But there are many times when their movements must be guided by a greater degree of accuracy — when visibility is greatly reduced by darkness, fog, smoke, or thick vegetation, for instance, or when they are operating in an area where there is little local terrain relief. Few would argue that precision in selecting good steering marks to guide movements by dead reckoning is especially difficult to achieve with a base-plate protractor compass. At these times, soldiers must have the accuracy a lensatic compass provides.

Another time when soldiers will require more accuracy is when they must determine their position by resection and intersection using terrain features at great distances. In such places as the National Training Center (NTC), for example, it is not uncommon for a unit to use terrain features 10 kilometers or more from its location to determine a position or to guide its movement. At these times, accurate compass readings can be a matter of survival and can make the difference between mission success and failure.

The amount of error introduced for every degree of inaccuracy read from a compass is equal to 18 meters per kilometer. Therefore, over a distance of 10 kilometers, an inaccuracy of six degrees results in well over one kilometer of error (18 x 6 x 10 = 1080 meters). This is not acceptable for units that expect to train successfully or to win in combat.

The more expensive protractor compasses do offer a built-in mirror-type sighting system that allows a user to sight on distant objects. Unfortunately, though, this feature introduces two additional problems:

ORIENTING

Alignment and Leveling. First, when the directional azimuth being measured is close to either north (0 degrees) or south (180 degrees), the north pointing arrow and the orienting arrow on the base are easy to align. But when the azimuth being measured approaches either east (90 degrees) or west (270 degrees), a correct alignment of the north pointing arrow and an accurate directional reading are much more difficult to achieve. When facing an azimuth of either 90 degrees or 270 degrees, I have measured as much as a six-degree error when I incorrectly aligned the tip of the north seeking arrow with the point of the orienting arrow on the base instead of allowing for the parallax problem encountered under these circumstances.

As if to prove this point, most protractor-type compass manufacturers also offer hand-bearing compasses designed much like the lensatic compass on which the magnetic north arrow is attached to and rotates with the circular directional scale. Most of these compasses also use a sight and lens with which to take accurate directional readings.

The second problem introduced by this mirror-type sighting feature is the difficulty it causes in trying to hold the compass level.

All compasses must be held in a level position to take accurate directional readings. Otherwise, the north seeking needle or rotating directional card will rub on the bottom of the instrument, causing it to give an inaccurate reading.

The difficulty encountered in trying to hold a protractor compass with a mirror-type sighting feature level is that the user can see only the tilted image of the compass. When he sights on a distant feature, he must line up the magnetic north arrow with the orienting arrow as he looks into a tilted mirror reflecting the tilted image of the compass face while, at all times, attempting to keep the instrument level. This can be quite a challenge.

There is yet another problem with using the mirror sight on a protractor compass. Compared with the vertical sighting slot and wire on the lensatic compass, the mirror sight is difficult to use when the feature being viewed has a significantly higher or lower elevation than the position on which the user is located. This circumstance greatly compounds the challenge of keeping the compass level.

Map Protractor Readings. In addition to the limitation associated with the protractor compass's liquid damping feature, the next most serious disadvantage with it, ironically, is its alternate use as a map protractor. While it is true that the design of the protractor compass does make it the easier one to use as a substitute for the map protractor, this design also presents some serious shortcomings.

More specifically, some people mistakenly believe they can plot magnetic compass azimuth values directly on the map simply by taking a directional reading with a protractor compass in the field and then, without further adjustment, laying the compass directly on the map to make a directional plot. This is just not the case.

The fact is that when using the protractor compass as a map protractor, a soldier must first convert the directional reading taken in the field, using the grid-magnetic (G-M) angle found on the map's margin, before plotting it on the map as a grid azimuth. This means the soldier must be taught to slip the compass scale the appropriate number of degrees in the correct direction *after* using it to determine a real world direction yet *before* using it as a map protractor. Of course, he must take the opposite action for any directional value he reads off the map using the compass as a protractor before applying it on the compass in the real world. This confusing "scale slip" procedure is thoroughly described in most instructional sheets accompanying protractor-type compasses.

MARKING

There are only two conditions under which the protractor compass can be used on the map without concern for the conversion between grid and magnetic azimuth values. These conditions are:

- When the map being used is specially prepared with "magnetic north meridian lines" drawn on it (explained in some protractor compass instruction sheets).
- When the protractor-type compass being used has a special declination correction feature built into it.

There is no question that it is far easier to use a separate map protractor than to add these extra lines to all the maps. Whenever this alteration is accomplished, it must be done *precisely* by a knowledgeable person using drafting tools. But I do not recommend that it be done at all; our large-scale Defense Mapping Agency (DMA) maps already contain a wealth of detail that a navigator must be able to see and use easily. Any additional clutter may reduce the readability of a map. In fact, it is always best to refrain from making any extraneous markings on our maps. Even

necessary tactical and operational details should be kept to a minimum and placed on overlays or on the map case or cover.

When making directional plots on a map with a protractor-type compass, a user must first correctly orient the compass on the map. He does this by rotating the entire instrument until the *orienting arrow* and the *orienting lines* are perfectly aligned with the grid pointing north. The problem is that when a protractor compass has a built-in declination adjustment feature, any adjustment being applied causes the orienting arrow and the orienting lines to point in different directions. This can easily lead to confusion as to which of the two is to point directly north on the map when the compass is correctly oriented. This confusion can then result in significant errors when a soldier is plotting a position using resection or intersection or when using an azimuth to guide his movement. Hopefully, he will not be calling for close-in fire, looking for an emergency evacuation, or searching about for a coordination point at the same time he is making these unnecessary mistakes.

It may be best — no matter which type of compass a soldier is using — always to use a compass for finding directions in the real world and a separate protractor for that same purpose on the map. Anyone who is concerned about breaking or tearing his protractor should know that there are unbreakable models on the market. A special adjustable protractor is also available that allows a user to plot and read magnetic azimuths directly on the map without first having to convert between grid and magnetic values.

Night Use. Because much present and future combat is likely to occur at night, a military compass must be easy to use during the hours of darkness. The lensatic compasses now being procured contain vials of tritium gas, which provides a subdued green fluorescence that allows them to be read easily at night without any external light source. This constant source of illumination, coupled with the bezel ring and clicking feature, make the lensatic compass the best possible guide for a night fighter.

The luminous features found on some protractor-type compass models require frequent charges from a light source, cannot be reset for another direction, and do not allow azimuth readings to be taken unless the compass is illuminated by another light source. The azimuth directional scale on a protractor-type compass is printed on the outside edge of the compass housing, which is normally black. And, of course, using a flashlight frequently at night during combat operations is not a good idea.

Some who favor the adoption of the protractor-type compass argue that the major problems with training soldiers in land navigation skills today are directly associated with teaching them how to read a compass and use a map protractor. In addition, they often state or imply that the lensatic compass is difficult to learn to read. These arguments and implications are simply not true.

From 1982 to 1990, the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) conducted extensive research to identify and improve both the execution and the training of all critical land navigation skills. Teaching soldiers to read a lensatic compass was *not* found to be a weakness. The use of the lensatic compass in the center-hold position to determine rough compass direction is as easy as using the base-plate protractor-type compass. The compass-to-cheek method for more precision does require a bit more training, but soldiers seem to master this skill quickly and without difficulty.

Problems do result, however, when trainers and soldiers equate an ability to navigate over distances with finding their way around a short compass course consisting of stakes only 25 or 50 meters apart. The research indicated that we fail to teach our soldiers to use terrain association techniques adequately when moving cross-country. Even on a compass course, for example, it would be helpful to look closely at the map to determine whether the correct stake is located on a small spur or in a draw.

In summary, the research showed that the source of our current execution and training problems is our failure to prepare our soldiers thoroughly and to require them to use more advanced navigation skills — it is not their inability to use a map protractor or lensatic compass. These advanced skills include terrain analysis, map interpretation, good position fixing techniques, movement by terrain association, smart dead reckoning (with a terrain association backup), navigation in special circumstances (mounted and in different geographic and climatic regions), and using the various types of maps and aerial photographs that may be the only ones available for a given area of the world.

Finally, it is frequently argued that we are using an old outdated compass. Some people believe that because the protractor-type compass is new and modern it is therefore better. In fact, the base-plate protractor-type compass, developed in Sweden in 1928, has been around for some time, while the modern copper-induction-damped lensatic compass with illumination by tritium gas is certainly a recent development. If the basic design of the lensatic compass is superior to another compass, the Army should continue using it until something better (not just newer) comes along.

ARI researchers in the field did find several old, unserviceable lensatic compasses still being used by some of our schools and units. As with any other piece of equipment, commanders and trainers should ensure that all compasses are completely functional and should turn in those that need replacement. But this is not a selection problem; it is a replacement problem.

The lensatic compass presently in service is the one that best meets the needs of military land navigators. It is capable of performing a wide range of functions on the battlefield under less than ideal conditions — when it counts most.

Noel J. Hotchkiss was a land navigation specialist and curriculum design consultant with the ARI land navigation research project at Fort Benning. He recently retired as a lieutenant colonel in the U.S. Army Reserve after serving in the 1st Infantry Division, the 27th Brigade (New York Army National Guard), and the 98th Division (Training).

TRAINING NOTES



Snipers

A Neglected Combat Multiplier

CAPTAIN PHILIP K. ABBOTT

Snipers in U.S. history can be traced back to the Revolutionary War, in which Minutemen realized that killing the enemy from long range would limit the threat to their own ranks. Despite the vital role snipers have played in past wars, we are once again faced with the pain of rebuilding our sniper program. Over the years, our soldiers have become progressively poorer as marksmen and now rarely attain any true skill or proficiency with their weapons.

Marksmanship has always been an honored skill in our country, from Daniel Boone and Davy Crockett to Alvin York and Audie Murphy. Unfortunately, such men have long since perished, along with their skills in marksmanship and woodsmanship.

The Vietnam War did little to improve our soldiers' marksmanship skills, mainly because everyone was issued a rifle that had a full automatic capability. Our soldiers, therefore, often used sheer firepower instead of making each shot count. It has been estimated that during the Vietnam War, U.S. soldiers fired more than 200,000 rounds to get one confirmed kill. On the other hand, it took only 1.3 rounds for a sniper to get one kill. More significant than the number of rounds fired, a sniper had a psychological effect on the enemy that far outweighed the relatively small outlay of resources that he represented. There are numerous accounts of Viet Cong officials altering their primary mission to seek out U.S. snipers who had inflicted a large number of casualties on key targets and consequently had lowered the morale of their units.

A sniper is one of the most valuable assets available to a commander. This is particularly true in light infantry divisions, where snipers are best used on a slow-moving battlefield, such as in a low intensity conflict. (The Vietnam War was an ideal setting for classic sniper warfare because of the almost total absence of fixed combat lines, the fluid battlefields, and an enemy that often operated in small units.) More to the point, snipers can make a critical difference in the efficiency of waging the kinds of limited war the U.S. will most likely fight in the foreseeable future. Lebanon, Grenada, and Panama are but a few pertinent examples.

This is not to say, however, that snipers would be unproductive in a mid or high intensity conflict. Historical accounts of the battle for Stalingrad most certainly indicate that ultimate victory turned on the proficiency and persistence of large numbers of Soviet snipers.

A sniper team can be a combat multiplier when used to support any number of missions — combat patrols, ambushes, counter-sniper operations — and for information gathering. Additionally, a team can be used with forward observation elements, with the forces left in contact in retrograde operations, or with units conducting stay-behind operations.

Snipers must not be wasted, however, on tasks that can be accomplished more efficiently by other means. Their employment must be based on sound intelligence, and they must be allowed enough time to deploy to their positions using stealth and concealment.

There are essentially only two types of targets that are suitable for a sniper: Deliberate targets (confirmed enemy locations against which a sniper is tasked to kill a specific enemy) and opportunity targets (suspected enemy locations or activities that require snipers to observe an area, detect a likely target, analyze their observations, then select and kill the most important enemy in the target area).

Snipers operate under considerable strain and should not be deployed longer



than necessary to complete their task. If a sniper team must remain in a hide position for more than 48 hours, for instance, the members should be relieved regularly or augmented with another team. (If reliefs are made too frequently, though, they may give away the location of the sniper position.)

An all-inclusive sniper program requires proper training, equipment, and leadership. Unfortunately, and because our Tables of Organization and Equipment (TOEs) are still deficient in providing the basic, essential equipment, some light infantry battalions have temporarily answered the organizational problem by augmenting their scout platoons with seven-man sniper-observer squads drawn from the rifle companies.

Each rifle company identifies four candidates, two primary, two alternate. The two primary candidates make up one of three sniper teams in the battalion sniper squad. The other two candidates remain in their company as prospective alternates. To maintain their proficiency, the alternates continue to participate in all sustainment training. This, in turn, provides a feeder system to supplement the sniper program.

The acquisition of equipment and match-grade ammunition remains a serious problem. Although rifle companies now hand-receipt night vision devices and radios to make up some of the shortages, additional mission essential equipment is needed. To give our sniper squads the best opportunity for success, adjustments need to be made in the TOEs. In addition to night vision devices and radios, each team should have at least a 20-power spotting scope, a KYK-57 secure device, and a range finder.

Even more important than equipment, however, is the man behind the rifle. It is simply not enough to be an expert marksman; effective snipers on the battlefield must meet certain other criteria:

- Psychological makeup is paramount. A sniper must have the self confidence that enables him to kill when the time comes. At the same time he must have a conscience that keeps him from killing just for the sake of killing.
- A sniper must have considerable knowledge of nature and the outdoors, a sense of belonging to the wilds, extensive fieldcraft skills, excellent physical condition and, most important, mental stability.
- He should be a right-handed shooter, because the bolt handle of the M24 is on the right side.
- He should not wear glasses, because glasses can be lost or broken, or fogged at a critical moment, or they can catch the glint of the sun and compromise his position.
- A sniper should not be a tobacco user. Smokers and chewers get nervous and fidgety when they are unable to indulge.
- Most of all, a sniper must have truly limitless patience. Nothing else must enter his mind except his job.

When we study the makeup of some of the legendary snipers in U.S. history — such men as U.S. Army Captain Herbert McBride and U.S. Marine Gunnery Sergeant Carlos Hathcock — we see the extraordinary qualities that are so important to a sniper. We see a much higher level of innate intelligence, ability, concentration, and self-discipline than we see in the average infantryman.

Although a few senior officers have finally begun to pay more attention to the sniper issue, too many of our leaders do not understand the very basics of marksmanship, much less the refined skills required for effective sniping. They do not understand the potential combat multiplier effect this flexible and versatile asset can offer them.

Accordingly, on future battlefields, sniper teams must be used effectively, not misused. The Army's schools must develop and teach sniper doctrine and employment, and units must emphasize the use of snipers during field training exercises. The Infantry School has a formal sniper school, and its instruction should be continually upgraded. In addition, each light infantry division should have a sniper school to sustain the highly perishable skills taught by the school at Fort Benning.

The unique physical and psychological attributes of a true sniper require special handling. Snipers should have the best, most complete equipment available, should be promoted faster, and should be managed as a separate military occupational specialty (MOS). In short, snipers should be treated as a special class of warriors, for they are indeed very special and critical combat multipliers.

Sniping has great potential for use throughout the operational continuum. A continued lack of understanding and willingness to commit ourselves to supporting an effective sniper program is foolhardy.

Captain Philip K. Abbott commanded a rifle company in the 4th Battalion, 22d Infantry, 25th Infantry Division when he wrote this article. He previously served as a battalion adjutant and assistant S-3. He is a 1982 ROTC graduate of Norwich University. He is now enrolled in the Latin American Studies graduate program at the University of Kansas in preparation for a foreign area assignment.

The U.S. Army Sniper School

Selecting the Best Students

SERGEANT FIRST CLASS EARL S. ELLIS

The U.S. Army Sniper School — a three-week course conducted at Fort Benning, Georgia — is designed to train soldiers to engage key selected targets with long-range precision fire and to use the techniques of sniper fieldcraft.

Unfortunately, too many leaders who send soldiers to the school choose them at the last minute on the basis of who wants to go or who can be spared most easily from a unit for three weeks. This type of selection process is typical of a lack of command involvement, or simply a lack of understanding about the Sniper School, its mission, and its prerequisites for attendance. As a result, many of these soldiers do not meet the course's prerequisites and have to be returned to their units.

The course's 192.5 hours of instruction consist of 31.8 hours of conference or lecture and demonstration, 158.7 hours of performance oriented practical exercises, and a two-hour written examination. The areas of instruction include the following:

- Organization, use, and employment of snipers.
- Command and control.
- Combat orders (mission planning).
- Camouflage and concealment.
- Selection, construction, and occupation of positions.
- Movement and engagement.
- Silent movement techniques.
- Target detection and selection.
- Sniper field sketch, range card, and logbook.
- The threat.
- Range estimation.
- Sniper marksmanship.
- Sniper training program.

Upon completion of the course, students are awarded a U.S. Army Infantry School diploma and the additional skill identifier (ASI) of B4.

Commanders, therefore, should make every effort to see that only their best qualified soldiers are sent to Fort Benning to undergo this important and beneficial training. A potential student must meet the following prerequisites (as specified in DA Pamphlet 351-4, Army Formal Schools Catalog, 1 Oct 90):

- Must be male, CMF 11, in the rank of private first class to sergeant first class (rank may be waived), active duty or reserve component.
- Must have a GT score of 110 or higher, good performance ratings with no history of alcohol or drug abuse, and no record of disciplinary action.
- Must be recommended by his commander.
- Must be in excellent physical condition (70 percent or better in each event of the Army Physical Fitness Test, APFT), and have corrected vision of 2200-20/20.
- Must be knowledgeable of CMF 11 Skill Level 2 tasks and be an expert marksman.

If commanders do not get involved in selecting the soldiers to attend the course, the sniper students are likely to fail in one or more of the following areas:

Marksmanship Proficiency. Several times in the past, a sniper student's ability to fire Expert with any consistency has been assumed but not properly documented, and the student has not been able to attain the course's 80 percent standard for marksmanship. Potential students must master the basics and should properly demonstrate their mastery of them during rifle qualification at their home stations and before they are selected for the course.

Physical Conditioning and Stamina. Students who cannot achieve at least 70 percent in each area of the APFT may not be able to complete the rigorous training they will undergo at the Sniper School. A lack of fitness can prevent them from completing the performance-oriented training in the course, while the fatigue that results from it can reduce mental clarity.

Mental Preparation. Potential sniper candidates must be aware that, in addition to receiving training in delivering long range precision fire, they are being trained for employment in extended operations with little to rely

upon except their buddies and themselves.

Minimum GT Score and Technical Proficiency. To succeed during the course's performance oriented testing, students must be able to grasp the technical data quickly and must rely heavily on their land navigation, mission planning, communications, camouflage, and movement skills. The minimum GT score of 110, along with a proficiency in all Skill Level 2 tasks, will help ensure successful completion of the course.

Motivation. The Sniper School is considered one of the most physically and mentally demanding courses the Army has to offer. In addition to having to learn ballistics, ammunition types and capabilities, adjustment of optical instruments, and range estimation procedures, snipers must also display initiative, decisiveness, self-reliance, good judgment, and common sense. Accordingly, sniper candidates must be selected from personnel who are highly motivated and have a positive attitude.

Retainability. A commander may decide to reward a soldier's good performance with an opportunity to attend the sniper course, but if the soldier does not have at least a year of retainability, this training will not benefit either the unit or the Army.

A commander can simplify his selection process by creating a sniper indoctrination program similar to a pre-Ranger training program. If that program is made a part of the sniper sustainment program as spelled out in TC 23-14, competition for a slot will then give the unit better qualified potential snipers.

The soldiers selected to attend the indoctrination program should meet, at the least, the prerequisites as outlined in DA Pamphlet 351-4. Then, the training they receive in the indoctrination program should be both mentally and physically demanding, and should include the following:

- Zeroing and practice fire.
- Field firing (unknown distance).
- Observation and target detection.
- Range estimation.
- Concealment and concealed movement.
- Land navigation.
- Call for fire.
- Communication procedures.
- Physical training.

Once a soldier has completed the indoctrination program, the commander should review his training records and conduct a personal interview with him. Then, the commander, when he is fully satisfied with the soldier's readiness, should certify on DA Form 4187 that he meets the prerequisites for the Sniper School.

The diligent screening of potential snipers by unit commanders will ensure that only the best soldiers are sent to the U.S. Army Sniper School; those soldiers, in turn, when they graduate, will then provide their commanders with invaluable combat multipliers.

Additional information on the course's prerequisites and program of instruction is available from Commander, 2d Battalion, 29th Infantry, ATTN: USASS, Fort Benning, GA 31905-5000; telephone DSN 784-7455/7438 or commercial (404) 544-7455/7438.

Sergeant First Class Earl S. Ellis was NCO in charge of the U.S. Army Sniper School when he wrote this article. He previously served with the 2d Infantry Division and the United Nations Command Security Force along the demilitarized zone in Korea. He has also served in the U.S. Army Marksmanship Unit at Fort Benning and is the 1991 All Army Sniper Champion and a member of the "President's 100."

The Neglected M16 Magazine

MAJOR THOMAS H. BAKER

In many units, soldiers are not issued magazines for their individual weapons. The magazines are usually transported from the supply room to the range in footlockers or other makeshift containers. Other units temporarily issue magazines to the soldiers, then collect them and store them at the ammunition point on the range. In either case, the intent is to have the magazines loaded by the personnel manning the ammunition point instead of by the individual soldiers, and to promote ammunition accountability and speed range operations.

Some may wonder, "What's wrong with that? After all, this is what they do in initial entry training, and it is officially encouraged by doctrine and regulations." But such practices cause a lot of problems:

First, the magazine is an important part of the rifle and should be mated with a specific weapon. Because of dimensional differences in both weapons and magazines caused by manufacturing and wear, a magazine that is fully functional in one weapon may not function at all in another. Too, our current zero and qualification practices do not permit our soldiers to fire fully loaded magazines to insure that they function properly in a particular

weapon. But magazines that work with 3, 10, or 20 rounds on the zero or qualification ranges, or with 30 blanks on a field training exercise, may not necessarily function when they are fully loaded with live ammunition. The only way to determine proper functioning is to use the magazine fully loaded with live ammunition.

Another problem that can cause magazine malfunctions is the practice of keeping them at an ammunition point instead of with the weapon in which they function well. The magazines stored at an ammunition point are often not checked for serviceability and, in the usual rush to leave a range, are frequently placed in containers and transported directly to an arms room, supply room, or weapon pool where they are stored and forgotten until needed again. As a result, they are rarely inspected and cleaned, and when issued later, they are dirty and the springs are rusted, which causes additional malfunctions.



Pooling magazines, either at the ammunition point or the arms room, does not encourage soldiers to properly maintain them. In other words, if the magazines are not individually issued, the soldiers are seldom inclined or directed to maintain them carefully. This is illustrated on numerous ranges and exercises where magazines (and other items of equipment that are not individually assigned) are tossed, kicked, dropped, or generally mishandled. The magazine is relatively fragile and will not function properly if subjected to abuse and poor maintenance; it is an important part of the weapon and should not be taken for granted. Dropping magazines on the ground permits dirt to get into them, and tossing them into footlockers or other hard containers bends or breaks the feed lips and dents the magazine bodies.

Using a detail to clean an entire unit's magazines — unless the process is closely supervised by knowledgeable, conscientious leaders — often results in improper cleaning, lubrication, or assembly. Few soldiers would trust someone else to clean and reassemble their weapons in combat; the same should apply to the care and loading of magazines.

Pooling also encourages poor training habits. Soldiers who are not assigned to an ammunition detail rarely learn how to load the magazines using the charger and stripper clips provided in the bandoliers. And, for the sake of speed or comfort, the soldiers who are assigned to the ammunition detail frequently adopt improper loading practices. (They say that loading numerous magazines according to the speed loading method prescribed in Field Manual 23-9 hurts their thumbs, and they don't like it.) A common example of improper loading is placing the ten-round stripper clip into the charger, attaching the charger to the magazine, turning the entire assembly upside down with the cartridges resting on a hard surface and forcing the magazine downward to load the cartridges. The feed lips are damaged in the process, and this usually results in feeding or ammunition retention problems.

Two other common forms of magazine mistreatment stem from watching too many movies on television. First, a soldier inserts the knotted end of a straight or looped piece of parachute cord into the bottom of the magazine before replacing the floorplate. This leaves a length of cord as a sort of handle. The intent of this ingenious and well-meaning modification is to allow the soldier to extract magazines from the pouch rapidly by yanking them out with the cord. But M16 magazines, with the exception of the spring and follower, are made of aluminum and magnesium alloys that do not withstand much pressure without cracking, deforming, or breaking. Aside from creating another entrance for dirt and dust, a soldier, in the excitement of combat, may yank too hard and wind up jerking the floorplate completely off of the magazine, releasing the spring, follower, and ammunition onto the ground.

Besides, once the magazine is withdrawn it is still dangling on a string, and the time saved extracting it must then be used to gain control of the magazine before it can be inserted into the weapon.

In another form of abuse, two magazines are attached, usually by

means of tape or commercially available spring clips. One magazine is inserted in the weapon with the other attached to it upside down so it can be reversed and loaded as soon as the first one is expended.

If everything works well, this method may be slightly faster for a magazine change, but it offers little other advantage to the soldier, the weapon, the magazine, or the ammunition. In the prone position, the bottom magazine, with its cartridges frequently touching the ground, becomes nothing more than a highly efficient mud scoop. If the feed lips of that magazine bend or break for any reason, all the ammunition in it is dumped on the ground.

Also, the extended length of the two magazines forces a soldier into an uncommonly high prone position that adversely affects his marksmanship and increases his exposure to enemy detection and fire. The increased weight of the second magazine may also cause excessive wear to the weapon's magazine catch or magazine well, resulting in magazine/cartridge alignment problems (with accompanying malfunctions), or even magazine retention problems. (It is most embarrassing, to say nothing of hazardous, to have a magazine fall out in the middle of a fire fight.)

To resolve problems such as these, the U.S. Army Marksmanship Unit (AMU) recommends the following:

The Army's proponent for small arms marksmanship should develop detailed doctrine that encourages proper issue, maintenance, handling, storage, inspection, loading, and testing of magazines. Issue and range procedures should be developed that prohibit the pooling of magazines. Soldiers should then be required to load their own magazines and store them in their ammunition pouches. This might be done at the last concurrent training station before they are called to the firing line. Practice, qualification, ARTEP, or other courses should be developed that enable soldiers to fire fully loaded magazines for function testing along with their marksmanship training and evaluation.

In schools for officers, NCOs, and weapon or range instructors, training on proper magazine handling should be part of the marksmanship portion of the curriculum. Soldiers learn from their leaders, and AMU observations of hundreds of NCOs, officers, and instructors indicate a general lack of knowledge concerning magazine handling and maintenance.

At the unit level, individual soldiers should be issued basic loads of magazines and held responsible for their accountability, proper maintenance, and handling. Leaders should inspect the magazines during TA-50 or weapon inspections and enforce proper maintenance, storage, and handling procedures.

Although magazine pooling is currently mandatory at many ranges or installations, certain steps can be taken to reduce the problems with this procedure. Tape marking the magazines with the soldiers' names would ensure that each is issued the same magazine at the ammunition point. And proper training and supervision of the loading detail would reduce damages. Unserviceable magazines could then be destroyed and replaced.

Current marksmanship training doctrine and practices generally stress reducing the expenditure of resources and time, especially in deployment situations. But neither resources nor time should be reduced to the point that lives and combat readiness are placed in jeopardy.

Problems with M16A2 magazines can be solved, and solving them will increase the survivability of our soldiers and improve their proficiency and confidence in their weapons. No soldier should ever be required to perform the first complete operational check of his weapon after he is engaged with the enemy.

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Fire Support in Low Intensity Conflicts

MAJOR GARNETT ARNOLD

Low intensity conflict poses a number of unique challenges for fire support planners. The nature of warfare within this spectrum exposes three key issues that continue to plague both maneuver commanders and fire support personnel — the challenges of using fire support on a non-linear battlefield, avoiding fratricide, and avoiding unnecessary collateral damage.

The Non-linear Battlefield. Field Manual 100-5, Operations (May 1986),

defines low intensity conflict as "a form of warfare that falls below the level of high and mid intensity operations and will pit Army forces against irregular or unconventional forces, enemy special operations forces, and terrorists."

While this definition says who the enemy will be, it does not imply where he will be. Fire support on the non-linear battlefield will therefore tax even the most sophisticated fire support systems. Unless friendly forces establish and maintain continuous contact with the enemy, that enemy is more likely to strike at a time and place of his own choosing.

History has shown us that well-trained guerrillas and insurgents do everything possible to avoid detection and the inevitable, devastating firepower for which U.S. forces are well known. They do this either by dispersion, by moving only during periods of limited visibility, or by staying close to areas or friendly forces that will preclude the use of our vastly superior firepower.

With only a limited number of fire support systems available, maneuver commanders often try to surround themselves with target reference points, final protective fire lines, priority targets, and other wasteful attempts to substitute the application of firepower for the common sense selection of defensible positions, and integrating fire support with barriers, early warning devices, and aggressive patrolling.

While low intensity conflict and the non-linear battlefield may imply a 360-degree threat, the notion that the generous application of firepower and planning will get you a good night's sleep is both fallacious and dangerous.

Fire planning for the non-linear battlefield requires a thorough analysis of METT-T (mission, enemy, terrain, troops, and time), with particular emphasis on terrain and enemy forces. Whether in pursuit, temporary defensive positions, or movement to gain or maintain contact, fire support planners and systems must always be prepared to deliver adequate firepower in any direction.

Fire support planners, keeping in mind that stealth and deception are a trained guerrilla's best protection, can also use a thorough analysis of his tactics and techniques (with the assistance of accurate intelligence from the G-2 or S-2) to prevent the indiscriminate diversion of valuable fire support assets.

Fratricide. Under no other circumstances is the probability of being engaged by friendly fire greater than in low intensity conflict. Having "friendly" bombs, rockets, and artillery fall on friendly troops and civilians not only has a devastating effect on morale, it also seriously damages the trust and confidence that maneuver commanders have in the fire support system. This trust, once lost, is not easy to regain.

Low intensity conflict, by its very nature, implies dismounted operations close to enemy forces; continuous operations where fatigue and limited visibility often contribute to human error; the lack of (or inadequate) fire support restriction measures; and, more commonly, the misidentification of friendly units and target locations.

RESPONSIBILITY

Fire support planners and those who control the delivery systems cannot disown their responsibility for where their ordnance lands. While the maneuver units' are responsible for knowing where they are at all times and for keeping their chain of command informed, fire support planners and delivery system operators must take an equally active and aggressive role in seeing that adequate safeguards are in place.

These safeguards, among others, include the following:

- Positive control of all delivery systems within the assigned sector and adjacent sectors.
- Continuous updating of fire support coordination measures.
- Positive identification and location of all friendly elements operating within the assigned sector.
- Emergency cease-fire signals, such as code words, flares, smoke, or marker panels, down to the squad and fire team levels.
- Specific, simple instructions in the fire support operations plan and order and in maneuver tactical SOPs.
- Mandatory check-in or liaison with all delivery system leaders whenever possible.
- Double checking everything, whenever possible.
- Remembering that fatigue kills.

Collateral Damage. One of the more unfortunate aspects of low intensity conflict is that innocent people are often hurt or killed, or their property is damaged or destroyed. Depending on the sophistication of the insurgents, this may be a deliberate effort to alienate the local populace, or part of a plan that keeps us from using enough firepower to suppress or destroy their forces.

The Geneva and Hague Conventions clearly define legitimate military targets and what constitutes wanton and unnecessary destruction. Aside from being tactically unsound and wasteful, the injudicious use of firepower can cause unnecessary civilian casualties, alienate host nation support, and subject our forces to adverse publicity, which will inevitably affect morale.

Again, a thorough analysis of METT-T, with the help of the G-5 or S-5 and host nation liaison people, can prove valuable. The logic of "destroying a village in order to save it" may not be an adequate defense in an international court or a trial by court martial. Fire planners must constantly seek alternatives to the application of destructive firepower. In some extraordinary cases, this may mean sacrificing some time or lives in seizing an objective, but a conscientious effort on the part of our forces to minimize collateral damage can only have a positive effect on our cause.

Other techniques for reducing collateral damage include:

- Thorough training in the Law of Land Warfare.
- Using psychological operations detachments and host nation liaison personnel to evacuate noncombatants, when possible.
- Pushing enemy forces into more favorable kill zones instead of surround-

ing them and trapping them in built-up areas.

• Conducting demonstrations of fire support capabilities in uninhabited areas.

• Using the least possible amount of fire support to accomplish the mission.

Fire support in low intensity conflict comes with some unique challenges — using fire support on a non-linear battlefield, avoiding fratricide, and avoiding unnecessary collateral damage. Maneuver commanders, working closely with fire support planners at all levels and with the operators of the various delivery systems, can overcome these issues through training, planning, and the concern that comes with the realization that lives and the mission are at stake.

Major Garnett Arnold is assigned to the Directorate of Plans, Training, and Mobilization at the Field Artillery School. He previously served as a fire support officer in the 3d Battalion, 319th Field Artillery, at Fort Campbell. He enlisted in 1972 and served in numerous infantry assignments before receiving a direct Field Artillery commission in 1981.

The Brevity Matrix

CAPTAIN DANIEL L. THOMAS

When I was the S-2 of an infantry battalion, I had to send dismounted patrols of two or three soldiers forward to establish observation posts (OPs) and collect information on the enemy. These teams often went behind the enemy front-line trace, which created several support problems, particularly in communications.

Since secure communications often fail, it is dangerous and irresponsible to give a team full SOIs (signal operation instructions) that may become compromised. To solve this problem, I modified a method the opposing force at the National Training Center (NTC) uses. It is a one-page code sheet called the Brevity Matrix, which enables OPs, scouts, and the S-2 section to encode and decode transmissions quickly and easily.

Each reconnaissance element and the S-2 section has a copy of the Brevity Matrix. It is used either all the time or only when secure communications are not available. I found that when teams used the matrix, communications were faster. The code was clear and it eliminated difficulties that arose from mispronunciation and interference. It is on a single page and is easier to use than the brevity codes in the standard SOIs.

The Brevity Matrix is a box with 11 vertical columns and 27 horizontal rows. The numbers 0 through 9 are in

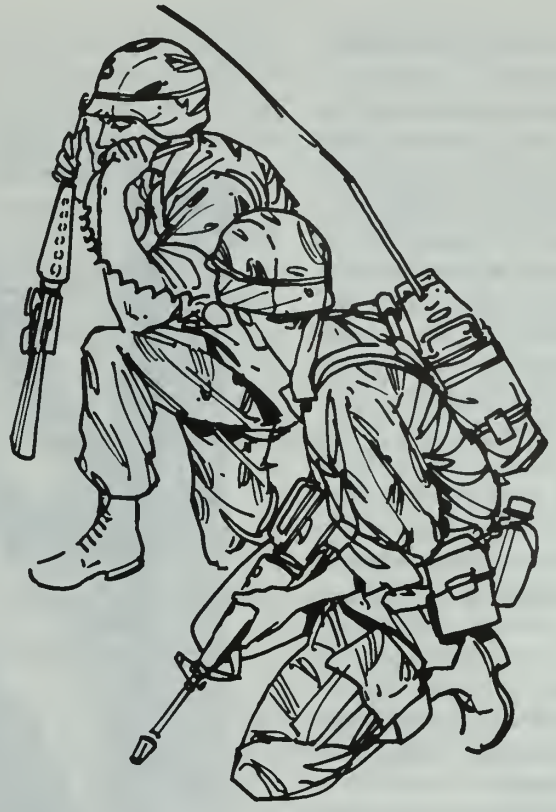
	1	2	3	4	5	6	7	8	9	0
A	1	6	A	B	C	D	E	F	G	H
B	2	7	I	J	K	L	M	N	O	P
C	3	8	Q	R	S	T	U	Y	W	X
D	4	9	Y	Z	HULL				ROAD	UN/ID
E	5	0			IDENTIFY	LZ	MRC	OP/LP	SA	UNIT
F		BRDM			ILLUMINATION		MRB	OPSEC	SAW	
G	ACTIVITY	BULLDOZER	DIG	FRAGD	IMPROVE	M-1	MRR	ORIENT	SCREEN	VEHICLE
H	ADA	BYPASS	DIRECTION	FREQUENCY	OM	M-16	MOVE	OVERHEAD	SEND	VISUALLY
I	AIR	CALIBER	DISMOUNT	FRIENDLY	INDIRECT	M113	MOVING	PASSAGE	SIGNAL	
J	AIRCRAFT	CAMOUFLAGE	DISTANCE	FROM	INFANTRY	M-60 TANK	MY	PATROL	SITREP	WADI
K	ALTERNATE	CHANGE	DRAGON	FRONT	INFILTRATE	M-60 MG	NAI	PERSONNEL	SOUTH	WATER
L	ANTI-TANK	CHEMICAL	DUST	FUEL	INFO	M577	NBC	PHASE LINE	SPELL	WE
M	APACHE	COBRA/AH-1	EAST		INFRARED	MACHINEGUN	NEED	PIR	SPEED	WEST
N	APC	COLUMN	ECHELON	GALLONS	ING	MAINTENANCE	NEGATIVE	PLATOON	SUPPLY	WHAT
O	AREA	COMMO	ED	GOOD	INSERT	MANEUVER	NLT	POW		WHEELED
P	ARMOR	COMPANY	ENEMY	GREEN	IR		NONE	PREPARE	TANK	WHEN
Q	ARTILLERY	CONDUCT	ENGINEER	GRID		MANY	NORTH	PRIMARY	TEAM	WHERE
R	ASAP		EQUIPMENT	GSR	KIA	MARCH	NUMBER	PROTECTIVE	TIME	WHY
S	AT	CONVOY	ETA		KILL	MEDICAL		PZ	TO	WOUNDED
T		COVER	EW	HASTY	KILOMETER	METERS	OBJECTIVE	RADAR	TOTAL	WIDE
U	ATTACK	DARKNESS	EWFILTRATE	HELICOPTER	LIGHT	MILES	OBSERVE	RECON	TRACKED	WIRE
V	AVLB	DECEPTION		HIND	LD/LC	MINES	OBSTACLE	RED	TRAIL	WITHDRAW
W	AXIS	DEEP		HILLTOP	LENGTH	MISSION	OCCUPY	REINFORCE	TRENCH	YOU
X	BATTALION	DEFEND	FEBA	HOW	LOCATE	MOPP	OH-58	REPORT	TURRET	
Y	BLACKHAWK	DEFILADE	FIGHTING	HOURS	LOCATION	MORTAR	ON	RIDGE		ZONE
Z	BMP		FOOD	HUEY/OH-1H	LOOK					ZSU

boxes in the top row. The letters A through Z are in boxes in the left-hand column. These two columns are the set lines. The other boxes in the matrix are filled with letters, numbers, and various words commonly used during communications. (See accompanying figure.)

To encrypt a word, first locate it in one of the matrix boxes. From that box, follow the row to the left to get a letter from one set line, and then follow the column up to get a number from the other set line. The combination of the letter and number is the encrypted word. In this matrix, for example, the word *enemy* is encoded as P3.

To encrypt an entire message, simply follow the same steps for each word, letter, and number in the transmission. For example, the message "One BMP moving north at NAI 8" is encrypted as "A1, Z1, I7, Q7, S1, K7, C2." If a word is not on the matrix, spell it out. For example, *fire* is encrypted "A8, B3, C4, A7." A unit can add any combination of words to the matrix to suit its individual needs. For instance, if your unit expects to encounter T-72 tanks, add the nomenclature to the Brevity Matrix.

For security, scramble the set lines periodically. Change the code for the same word or location by changing the set lines. If the letters and numbers in the set lines are left in the same sequence but each set line starts off at a new point (say at M instead of A), the enemy will have to try 260 different combinations to decode a message, even if the matrix is compromised. The number of possible combinations can be increased astronomically if the set line letters and numbers are completely scrambled. Furthermore, it is easy to make up several other matrices to keep on hand for use if a particular matrix is compromised. Too, if you do not have a spare matrix on hand and you must have another one quickly, it is relatively easy to make a complete new one in a short period of time.



The Brevity Matrix is an excellent communication aid for use between OPs, scouts, and the S-2 section, and its flexibility allows for other uses as well. For example, a matrix can be designed for use on an administration and logistics net. The Brevity Matrix is a quick and easy tool to help a unit maintain clear and secure communications.

Captain Daniel L. Thomas formerly served as S-2 of the 1st Battalion, 58th Infantry (now the 2d Battalion, 18th Infantry), and as ground surveillance radar platoon leader in the 197th Infantry Brigade (since redesignated the 3d Brigade, 24th Infantry Division). A 1985 ROTC graduate of Colorado State University, he also holds a master's degree from the Defense Intelligence College. He is now assigned to the Joint Intelligence Center, Pacific.

Mistakes: The Key to Learning

MAJOR NOYES B. LIVINGSTON III

Being allowed to make mistakes is a key element of learning new skills or sustaining old ones. A critical factor in military training is how far superiors should let their subordinates go in making mistakes. The answer is: As far as it takes to build a non-threatening and non-judgmental leadership and training climate in which subordinates

are willing to try to learn their boss's job as well as their own.

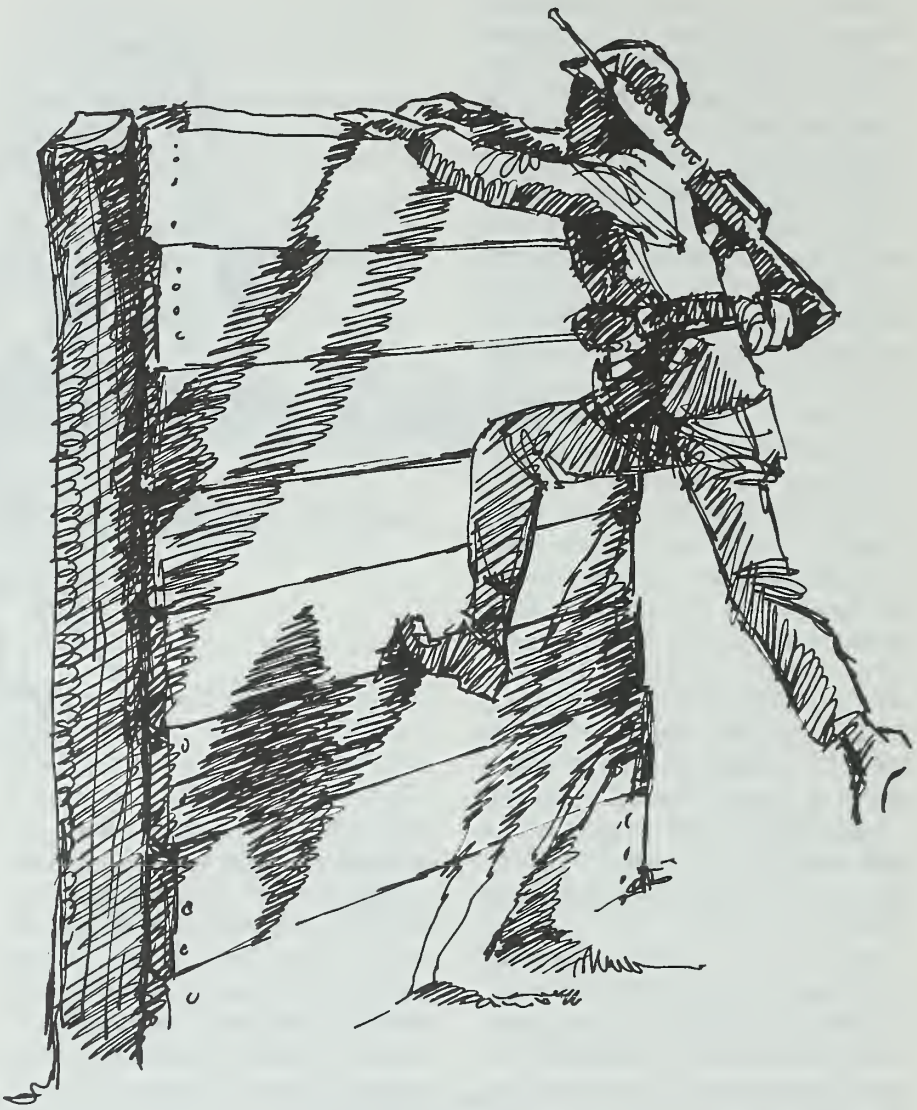
Eagerness to learn from mistakes will not last long in a unit where the leaders throw tantrums and fling helmets and are unwilling to accept mistakes as a price for that quality. If leaders do not want to guide errors in positive directions, soldiers will not attempt any task that produces less than zero defects, which eventually means zero effort, zero achievement, and zero learning.

Learning is gaining abilities over a period of time through observation or experience; it is nothing more than watching and doing. Most learning, like riding a bicycle, comes through imperfect practice. In bicycling, for example, a child's falls lead to wobbles, which lead to short stretches of coasting, until he is pedaling on his own. A wise parent picks a sidewalk through a grassy lawn instead of the street, but he does not try to prevent the falls.

If a task could be done correctly to begin with there would be no need to train on it. It is important for a trainer to understand that learning results from making mistakes, with the knowledge that mistakes will occur and that they are an important requirement for learning. If a young cyclist is yelled at for falling, he will not rejoice in the thrill of wobbling. The parent can run behind with words of encouragement, but he can't push or pull for the child. Only the child can feel the feedback through the handlebars and improve from the consequences of his actions.

One crucial enabling element in learning is often overlooked: learning to learn. It involves wanting to learn by taking risks, making good faith mistakes, and being determined enough to get it right eventually. It also involves being enthusiastically rewarded in the process. Just as a five-year-old's coasting deserves a pat on the back, so does a private's halting radio procedures when he could have safely ignored a message instead. The pat should be applied high and soft, not low and hard. Some leaders don't recognize the difference.

In a supportive atmosphere, using the appropriate reinforcement, a trainer can encourage a soldier to experiment, use his initiative, exercise his mental agility, practice teamwork, and make mistakes. In the same manner, if a leader productively directs the learning process and accepts mistakes gracefully, the leader, the soldier, and the unit benefit from the multiplying effect of learning opportunities that are acted upon at every level in the unit.



A negative adversarial environment can cause the subordinate to avoid his superior, both to avoid displeasing his superior and to protect himself. In the best of poor circumstances, subordinates collectively develop a committee mentality to avoid having to make independent decisions and be put on the spot individually.

In worse cases, a subordinate may develop a mild personality disorder as a defense or escape mechanism. This mechanism temporarily protects him from having to confront his superior and also from having to acknowledge his own suppressed hostility.

The soldier will continue to act agreeable, supportive, and aggressive, but it is a self-serving and ultimately self-defeating sham that conceals his unconscious fear of of making mistakes. As a result, the didactic superior becomes more isolated in his self-imposed ivory tower prison, surrounded by anxious yes-men, because he kills the messengers who are first willing to make mistakes and then to admit them.

An overbearing leader expects perfect performance and good news, and both

are in short supply in training and combat. His meager reward will be a unit that demonstrates little cooperation, volunteerism, or accomplishment and subordinates who build a Potemkin Village facade in his presence to hide feelings of inadequacy and incompetence.

Many authoritarian trainers believe they can turn appropriate participative leadership styles on in the field and back off in garrison. Unfortunately, it does not work that way. Even if the superior were capable of the transformation, his subordinates would not be. They would continue to misread the signals and suffer from role confusion.

The road to mission accomplishment and to high standards of performance is paved by the active contributions and occasional mistakes of every member of the unit. As Major General Elmer Stephens (a former commander of the 49th Armored Division) once said, "Good training does not trickle down; it bubbles up." The superior's attitude toward mistakes determines the direction of the flow.

Major Noyes B. Livingston III was S-3 of the 2d Battalion, 141st Infantry, 49th Armored Division, Texas Army National Guard, when he wrote this article and is now assigned to the Texas State Area Command. He previously completed a special assignment to develop a four-year Army National Guard training strategy for heavy divisions at the Combined Arms Center, Fort Leavenworth, Kansas.

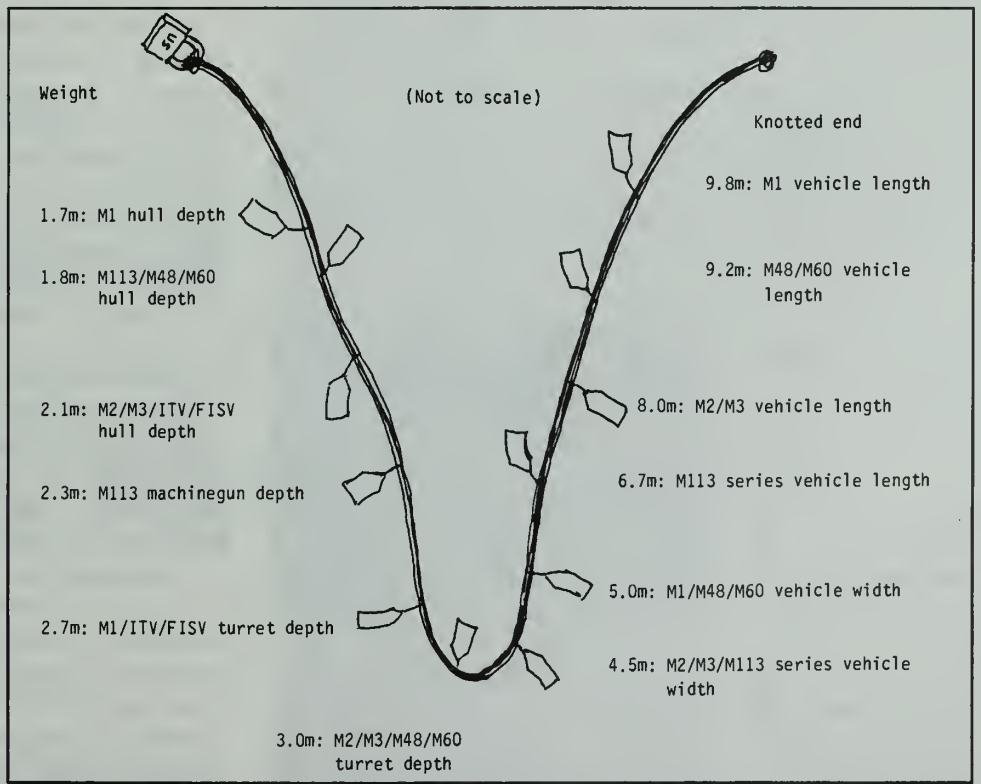
SWAP SHOP

TANKER'S ROPE

Suppose you're an infantry company team commander and you need to dig fighting positions for an attached platoon of tanks, but the tanks aren't there yet for you to measure. You can take a guess. Or you can make sure you have a tanker's rope available.

A tanker's rope is the fastest, most accurate, and most reliable way to measure and mark vehicle positions for digging. It is quick and easy to make.

Get about ten meters of 550 cord, a weight of some kind, and some ID or marking tags. Attach the weight to one end and tie it off. Mark the tags and tie them in at measured intervals according to the diagram below, and it's done! The model we show here is good for just about any type of tracked vehicle an infantry team may use, and you'll never be caught short again.



(Contributed by Lieutenant Daniel A. Guy, Support Platoon Trainer at the National Training Center.)

OFFICERS CAREER NOTES



YEAR GROUP (YG) 1989 LIEUTENANTS

If you are a lieutenant in YG 1989, now is the time for you to begin preparing your files for both the retention board and the captains promotion board. Dates for these boards have not been announced, but the retention board will probably meet in the spring of 1992 and the captains board in the fall of 1992.

During visits to the field, the Infantry Branch team from PERSCOM interviewed many lieutenants in YG 1988 who were uninformed, misinformed, or otherwise unprepared for the tough selection cuts facing them. All too often, the team discovered poor photos, late or missing OERs, and (worst of all) officers who were at risk because they had never taken an informed look at the senior rater profiles on their reports.

The objective of file preparation for any selection process is to ensure that the board makes its decision on the basis of your *performance*, not some administrative shortfall in the system. In this regard, you are ultimately responsible for seeing that your file is correct and complete.

Here is what you need to do:

• Take a photo as soon as possible. (Do not wear the infantry cord.)

• Review your ORB and make corrections with your local personnel support center.

• Order a copy of your performance fiche. Check it to see that your AER from the basic course and all of your OERs are annotated on the top half. Certificates and badge orders should be on the bottom half.

To request or update your fiche, write to: Commander, PERSCOM, ATTN: TAPC-MSR-S, 200 Stovall Street, Alexandria, VA 22332.

Have someone above you in the chain of command review your fiche, particularly OERs and senior rater profiles, to assess your relative risk at the board. If there is a problem, the current rating period is the best time to start soldiering your way out of it.

FUNCTIONAL AREA DESIGNATION

The functional area designation process for YG 86 officers is in progress. Packets were mailed to officers in June, and we expect the process to be completed by January.

Guidance and specific information about functional areas and the requirements for each can be found in DA Pamphlet 600-3.

Any questions should be directed to CPT Don Phillips, DSN 221-0207.

CAS3

Officers in YGs 1979 and later must complete the Combined Arms and Services Staff School (CAS3) before they can be slated to attend a resident command and staff course.

FY 1992
IOAC/AOAC CLASS DATES

IOAC

CLASS NO.	START DATE	END DATE
92-1	04 Nov 90	09 Apr 92
92-2	27 Jan 92	16 Jun 92
92-3	23 Mar 92	11 Aug 92
92-4	27 Jul 92	17 Dec 92
92-5	24 Aug 92	29 Jan 93

AOAC

92-1	23 Oct 91	27 Mar 92
92-2	08 Jan 92	27 May 92
92-3	08 Apr 92	25 Aug 92
92-4	10 Jun 92	28 Oct 92

Infantry Branch continues to encourage officers to attend at the earliest reasonable date. Most infantry officers attend CAS3 immediately following company command.

OER PROFILES

It takes about 45 days for an OER to be processed and posted to an officer's file. If you are concerned about the actual profile that appears on your OER, we recommend that you call Infantry Branch after that time. All the information we need is your Social Security Number.

ASSISTANT PROFESSOR OF MILITARY SCIENCE (APMS)

One of the assignment options available to branch-qualified infantry captains is that of Assistant Professor of Military Science (APMS).

Briefly, an APMS performs his duties under the supervision of a professor of military science (a lieutenant colonel) and serves as cadet advisor, guide, and counsellor in enrollment activities.

The position requires military education level (MEL) 6 (advanced course), and civilian education level (CEL) 5 (bachelor's degree). Some positions require CEL 2 (master's degree), and officers who have completed master's degrees should make sure their Officer Record Briefs are annotated accordingly. It is preferred that officers complete CAS3 before an ROTC assignment but exceptions will be made on a case-by-case basis. A Secret security clearance is also required.

Before arriving for such an assignment, all officers must also complete the School of Cadet Command. This ten-day course, which orients the officer

to the ROTC mission, is conducted at Fort Monroe, Virginia.

Infantry Branch will receive about 10 APMS assignments for the summer of 1992. If you are interested in one of these positions, it is not too early to let Infantry Branch know. Preference for location will be on a first come, first served basis. Contact MAJ Colie or MAJ Forrest at DSN 221-5511.

75th RANGER REGIMENT ASSIGNMENTS

Infantry Branch does not assign officers directly to the 75th Ranger Regiment. An officer who wants to be assigned there needs to send his application directly to the Regimental S-1, where it will be staffed. If he is accepted, the Ranger Regiment's officer assignment manager will contact Infantry Branch to request assignment instructions. If the officer is reasonably available he will be put on orders to the 75th.

Officers who are interested may contact CPT Schweikert at the 75th Ranger Regiment, DSN 835-7551.

WHEN TO CALL ABOUT ASSIGNMENTS

The average time you can expect to stay at a duty station as a captain depends on whether you are branch qualified. It is always best to call when you think your time for reassignment is drawing near.

If you have completed 12 months of an 18-month command, you would be smart to give your assignment officer a call. On the basis of how well you have done thus far, he should be able to give you a number of assignment options.

CONGRESSIONAL FELLOWSHIP PROGRAM

The American Political Science Association (APSA) annually selects up to three Army officers for the Congressional Fellowship Program.

The officers selected usually participate in a two-phase program. The first phase is an intense two-month course, "Congress and National Policy," at the Johns Hopkins School of Advanced International Government. The second is a 10-month work assignment in the United States Congress.

General prerequisites for applying include:

- Rank of major or junior lieutenant colonel.
- Completion of MEL 4 (resident/nonresident) not later than 10 January 1992.
- Interest in the legislative process and public affairs.
- Advanced degree, preferably.
- Cannot also be competing for White House fellowship.
- Normal joint duty stability requirements apply.

Infantry officers who want to compete must request permission to do so in accordance with AR 621-7. They must submit their written requests to Commander, U.S. Total Army Personnel Command, ATTN: TAPC-OPE-P, 200 Stovall Street, Alexandria, VA 22332.

Completed fellowship applications must be forwarded to PERSCOM, TAPC-OPB-D, to arrive not later than 10 January 1992. Applications must include:

- Statement on the relevance of congressional experience to career goals and utilization desires.
- Request to compete, with endorsements from immediate superiors.
- SF 171, Application for Federal Employment.
- Maximum of two letters of recommendation.

A DA board will meet in February 1992 to select three Army candidates for nomination to APSA, which will make the final selection in May 1992.

INFANTRY BRANCH POINTS OF CONTACT

ASSIGNMENT AREA	NAME	TELEPHONE (DSN)
Branch Chief	LTC Arch Arnold	221-0445
Branch XO	MAJ Frank Roberts	221-5510
Lieutenant Colonels	MAJ Cliff Dickman MAJ Matt McCarthy Mrs. Delores Hairston Ms. Koren Harley	221-5510
Majors	MAJ Bob Colie MAJ Ernie Forrest Mrs. Phyllis Harley	221-5511
Captains	MAJ John Baggott CPT Mark Armstrong CPT Rick Smarr Ms. Kenny Emerson	221-5520
IOAC/Lieutenants	CPT Bob Pricone CPT Chuck Taylor Mrs. Gwen Hughes Mrs. Kathy Gibson	221-5514/ 221-0207
Future Readiness	CPT Don Phillips Ms. Lynda Babylon	221-0207
Colonels	MAJ Egon Hawrylak	221-7866
Mailing Address:	Commander, PERSCOM ATTN: TAPC-OPE-I 200 Stovall Street Alexandria, VA 22332-0414	

*For commercial calls, use area code 703 and prefix 325 instead of 221.

The fellowship year will start in August 1992.

Additional information may be obtained from Mr. Strout, PERSCOM Development Branch, DSN 221-3140 or commercial (703) 325-3140.

RC OFFICER EDUCATION SYSTEM CHANGES

The new Reserve Component Officer Education System will have a major effect on officer training. It will encompass education from pre-commissioning through the Army War College; it will be progressive, sequential, and battle focused; and it will incorporate the Reserve Component environment.

Although the new system will add the Combined Arms and Services Staff School (CAS3), it will be shorter overall and more focused than the current system.

Under the new system, pre-commissioning requirements for successful completion of the Officer Basic Course and the requirements to attend the Army War College will remain the same. Officer Advanced Courses, however, will be offered in two branch-specific phases, one by correspondence and the other through two weeks in residence. Graduation from an advanced course will be a prerequisite for selection to attend CAS3. The CAS3 course will consist of a correspondence phase followed by eight weekend sessions and one two-week session.

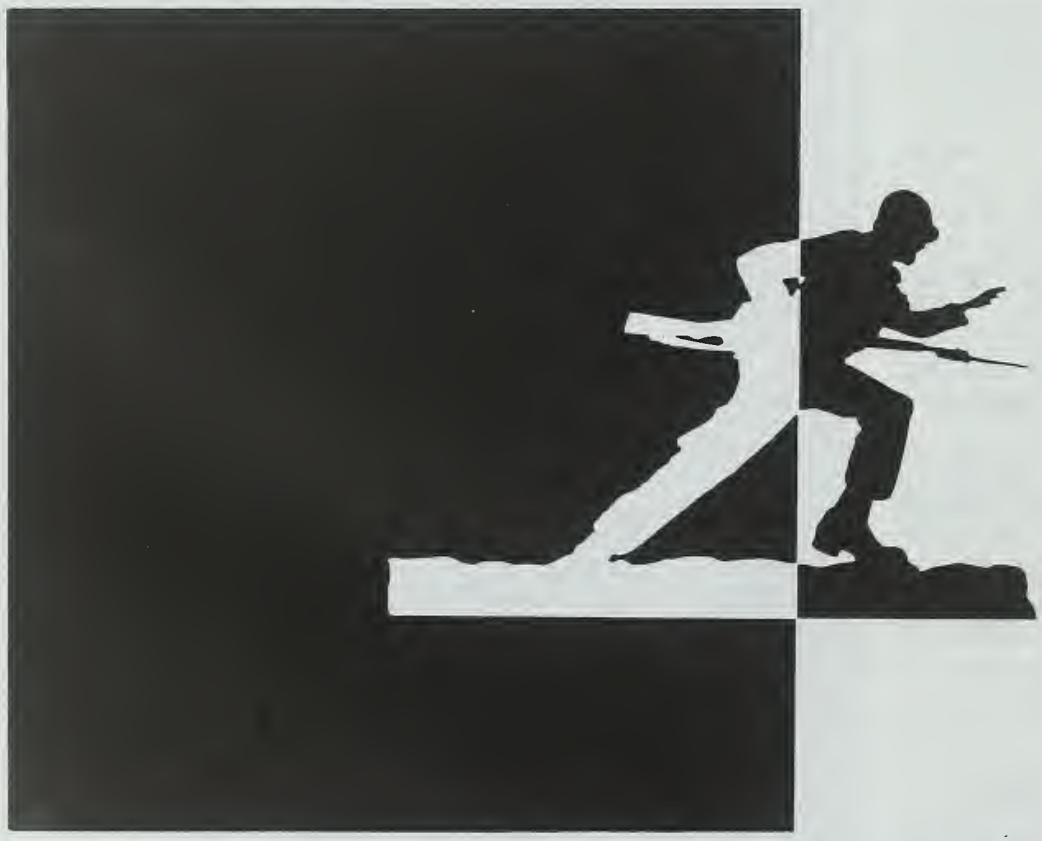
The non-resident Command and General Staff Officer College course will be restructured and shortened to two phases, each having two parts. Phase I, which will focus on the tactical level of warfare, will be required for promotion to lieutenant colonel. Phase II, which will focus on the operational level, will be required for promotion to colonel. This course remains available either through a U.S. Army Reserve Forces School or by correspondence.

RESERVE COMPONENT CAS3 IS COMING

The proposed date for full implementation of the Reserve Component Combined Arms and Services Staff School (RC-CAS3) is 1 October 1993.

After this date, captains must be RC-CAS3 graduates to be educationally qualified for promotion to major. Captains with a date of rank of 1987 or later are already required to complete RC-CAS3 before enrolling in the Command and General Staff Officer Course.

U.S. Army Reserve Forces Schools are identifying potential RC-CAS3 staff leaders for training and certification by the CAS3 school at Fort Leavenworth.



BOOK REVIEWS



The 50th anniversary of the Japanese attack on Pearl Harbor on 7 December 1941 will be appropriately noted, certainly by the people of the United States. As might be expected, we have received a number of books for review that discuss not only the momentous events of that day but those before and after as well. Here are a few of those books we commend to your attention:

• TARGET: PEARL HARBOR. By Michael Slackman (The University of Hawaii Press and the Arizona Memorial Association, 1990. 354 Pages. $19.95). Although the author, who has written previously on this same subject, devotes a good portion of his book to the Japanese attack itself and its immediate results, he does not neglect to set the stage or to discuss the aftermath. Throughout, he pays particular attention to the treatment accorded the Japanese-American population in Hawaii, treatment that differed widely from that meted out on the U.S. west coast. Don't overlook his concluding chapter, in which he tells of the U.S. search for a scapegoat, and his Appendix A, titled "A Note on Sources and Revisionism." In it, he tackles the subject of who, on the U.S. side, knew what and when and "the extreme revisionist position that Roosevelt and his advisors knew of the attack in advance." If you have not read much about this particular historical event, or your memory needs renewing, this book is what you want.

• REMEMBERING PEARL HARBOR: EYEWITNESS ACCOUNTS OF U.S. MILITARY MEN AND WOMEN. Edited by Robert S. LaForte and Ronald E. Marcello (SR Books, 1991. 295 Pages. $24.95). This book presents 40 oral histories of the events of 7 December 1941 in Hawaii as the individuals, interviewed separately by members of the University of North Texas Oral History Program with Pearl Harbor survivors, remembered them. These 40 accounts were selected from more than 350 interviews conducted during the past 15 years, a program that continues today. A number of the accounts were used by Michael Slackman in the book mentioned above.

• GOD'S SAMURAI: LEAD PILOT AT PEARL HARBOR. By Gordon W. Prange, with Donald M. Goldstein and Katherine V. Dillon (Brassey's (U.S.), 1990. 349 Pages. $21.95). In this, the sixth book by this redoubtable team (Prange died in 1980) on the war in the Pacific, the authors turn their attention to Mitsuo Fuchida, who not only led the Japanese attack on Pearl Harbor, but participated in most of the major Pacific Ocean battles that followed. (He was also aboard the USS *Missouri* during the surrender ceremonies in August 1945.) But this is really a two-part book: the first part is devoted to Fuchida's naval aviation career, the second to the post-war era when he converted to Christianity and became a widely traveled evangelist. It is interesting to note that during Fuchida's days as a student at the Japanese naval academy at Eta Jima between 1921 and 1924, his "instructors ... stressed that the United States was Japan's potential enemy." In the latter year, after a visit to San Francisco as part of a Japanese naval training cruise, Fuchida "now ... felt in his heart that ... the United States and Japan might indeed come to blows."

• VISIONS OF INFAMY: THE UNTOLD STORY OF HOW JOURNALIST HECTOR C. BYWATER DEVISED THE PLANS THAT LED TO PEARL HARBOR. By William H. Honan (St. Martin's Press, 1991. 346 Pages. $22.95). In 1925, a British-born journalist, Hector C. Bywater, published a book he titled THE GREAT PACIFIC WAR. (It has been reissued by St. Martin's Press to coincide with the publication of the Honan book (1991. 321 Pages. $22.95). Before reading Honan's book, you should first read the novel so you can follow his reasoning.)

In it, Bywater outlined a Japanese plan of campaign in the Pacific in the event of war with the United States, which, to him, was becoming more and more likely. (Bywater was also considered to be an expert in world naval matters and wrote extensively on the subject.) Honan believes that the famed Japanese commander, Admiral Isoroku Yamamoto, adopted Bywater's concepts when he developed his own plan for the attack on Pearl Harbor and the almost simultaneous assault on the Philippines, and for the later Japanese operation directed at Midway. Honan also believes Bywater's novel had great influence on those U.S. planners who developed this country's Plan Orange.

• THE WAY IT WAS: PEARL HARBOR, THE ORIGINAL PHOTOGRAPHS. By Donald M. Goldstein, Katherine V. Dillon, and J. Michael Wenger (Brassey's (U.S.), 1991. 192 Pages. $29.95). More than 10 years ago, J. Michael Wenger conceived the idea for this book. By then he had amassed a sizable collection of photographs on the subject and continued to collect more as time passed. Some years later, he met with Goldstein and Dillon (their names are mentioned in connection with another book review below), two well-known Pacific war historians, and his idea and photographs were turned into this, a story told in photographs of what happened on Oahu on 7 December 1941.

The more than 400 photographs reproduced here were culled from thousands of available prints. As the authors put it, "our problem was not finding significant prints but eliminating enough to keep the book to a reasonable size." The book itself is organized into eight chapters, an epilogue, and two appendixes, but there is no bibliography. The authors feel their other books on the same subject provide the needed documentation. They do provide a list of photo credits. They believe theirs is the only book that provides Japanese action photographs and shows Pearl Harbor before, during, and after the raid, as it really looked on that long-ago but well-remembered day.

• LONG DAY'S JOURNEY INTO WAR: DECEMBER 7, 1941. By Stanley Weintraub (Truman Talley Books. Dutton, 1991. 716 Pages. $26.95). There are 47 hours plus a full day (8 December) in the author's "long day." Yes, there is much about the Pearl Harbor attack on 7 December 1941, but almost as much about things that were happening to all sorts of people around the world on that same day, events that seem to have little, if anything, to do with the main subject. If you like a lot of trivia mixed up with some good World War II history, then this is your book. If you don't, it will be a long day's read.

• INVESTIGATIONS OF THE ATTACK ON PEARL HARBOR: INDEX TO GOVERNMENT HEARINGS. Compiled by Stanley H. Smith (Bibliographies and Indexes in Military Studies Number 3. Greenwood Press, 1990. 264 Pages. $45.00). Between December 1941 and June 1946 the United States conducted eight official investigations into the Japanese attack on Pearl Harbor on 7 December 1941. After the last one, the 79th Congress compiled and published, in 40 parts, the full testimony and evidence from all eight investigations. Parts 1 through 39 appeared under the single title, *Hearings before the Joint Committee on the Investigation of the Pearl Harbor Attack;* Part 40 appeared separately as the Joint Committee's report. Before this book appeared, the total record was never indexed or cross-referenced as a unit and there was no accurate aid for its use as a whole. This book, with its many hundreds of citations, provides just that valuable reference aid. Anyone who has ever worked with official U.S. Government records will surely appreciate it.

We also have two DESERT SHIELD/DESERT STORM books to call to your attention:

• IN THE EYE OF DESERT STORM: PHOTOGRAPHERS OF THE GULF WAR. Introduction by C.D.B. Bryan. Images and Text by SYGMA Photographers (Published by Henry N. Abrams, Inc., in association with the Professional Photography Division of Eastman Kodak Company, 1991. 176 Pages. $39.95). SYGMA is an international photo agency that employs many of the best photographers in the world. Accordingly, the photographers have been used to cover wars around the globe and therefore know what to look for — and what will sell. In this book, the work of 24 SYGMA photographers (identified in the book's last pages) who covered the various phases and events of SHIELD/STORM is presented in 189 full-color photographs. It undoubtedly has benefited from the publisher's association with the Eastman Kodak Company and from the heavy coated stock used throughout.

C.D.B. Bryan is an avowed pacifist who believes, to use a General Schwarzkopf expression, that "war is a profanity." This would indicate there are only "profane" photographs in this book. Not true, simply because not all of the photographers shared the Bryan feeling. In fact, most of them are on the opposite side and their photographs are among the finest we have seen to date. In fact, they were presented in an exhibition in New York City this past August.

The extended and descriptive photo captions by Glenn Albin are simply outstanding because they capture the exact mood of each photographer at the moment he tripped his camera.

• TRIUMPH IN THE DESERT: THE CHALLENGE, THE FIGHTING, THE LEGACY. Text by Peter David. Edited by Ray Cave and Patricia Ryan (Random House, 1991. 209 Pages. $25.00). A strong text illustrated with paintings done by three military artists and preceded and followed by nearly 200 photographs, graphics, and previously published word essays, mark this, overall, as the best book of its kind we have been offered for review.

The publisher refers to the book as "a commemoration and a history." It is both, largely because of Peter David's 45,000-word essay titled "Line in the Sand" and his later, but shorter, essay titled "Lessons of Victory." General Colin Powell's brief foreword sets an overall upbeat tone for the book, as does the simply designed dedicatory page on which are listed the names of those men and women who gave their lives.

This is not to say that David, a British journalist and specialist in Middle East affairs, believes every coalition action was perfectly planned and executed. He particularly criticizes the intelligence people for overestimating the number of Iraqi troops in Kuwait and underestimating the number of Scud missiles Iraq possessed.

But there is little doubt of his feeling for the overall coaliton effort. He writes: "It was ... a necessary war, which righted an obvious wrong and stopped a blood-thirsty tyrant in his tracks."

Here are a number of other publications we want you to know about:

• AMMUNITION FOR THE LAND BATTLE. By P.R. Courtney-Green (Volume 4 in the Brassey's New Land Warfare Battlefield Weapons Systems and Technology Series. Brassey's (UK), 1991. 227 Pages. $23.00, Softbound). This volume describes the latest developments in ammunition for each family of weapons — small arms, mortars, grenades, artillery, and mines — and offers the latest ideas in projectile and fuze design, terminal guidance, and charge configuration.

• RADAR. By P.S. Hall, *et.al.* (Volume 9 in the Brassey's New Land Warfare Battlefield Weapons Systems and Technology Series. Brassey's (UK), 1991. 170 Pages. $23.00, Softbound). In this volume the authors offer information about the basic operation, technology, and modern application of battlefield radar. The book is aimed at readers who do not have a detailed knowledge of electronics or radar systems, and also provides the latest developments in this vital technology.

• INTERNATIONAL ARMED CONFLICT SINCE 1945: A BIBLIOGRAPHIC HANDBOOK OF WARS AND MILITARY INTERVENTIONS. By Herbert K. Tillema (Westview Press, 1991. 360 Pages. $49.95, Softbound). An important reference publication in which 269 separate international wars and other war-threatening conflicts that occurred between 1945 and 1988 are briefly described. The data herein expand on that prepared by the author for the *Journal of Peace Research*, Number 26, 1989, and are part of his overt military intervention project. The book also contains a number of interesting and informative annexes.

• THE LATE 19th CENTURY U.S. ARMY, 1865-1898: A RESEARCH GUIDE. By Joseph G. Dawson III (Research Guides in Military Studies Number 3. Greenwood Press, 1990. 272 Pages. $45.00). The author catalogs, surveys, and appraises the considerable amount of contemporary and historical literature that traces the U.S. Army's evolution from 1865 to 1898, from the end of the Civil War to the beginning of the war with Spain. He covers all aspects of the Army's activities during this period, and adds a set of author and subject indexes to ease a researcher's task.

Now here are a number of our longer reviews:

STRIKE FROM THE SKY: THE HISTORY OF BATTLEFIELD AIR ATTACK, 1911-1945. By Richard P. Hallion (Smithsonian Institution Press, 1989. 323 Pages. $24.95). Reviewed by Lieutenant Colonel Jack Mudie, United States Air Force Retired.

This history of battlefield air interdiction (BAI) and close air support (CAS) unfortunately ends too soon. The author, an internationally recognized aerospace historian, covers his subject extremely well. But the critical reader will wish he had included the Korean and Vietnam wars, during which the politically restricted use of our overwhelming air power did not help bring about satisfactory conclusions to either conflict.

Although U.S. infantrymen have rarely been subjected to an enemy air attack for many years, this book can give them a better understanding of such attacks. Military strategists and tacticians can find much food for thought on what constitutes the "proper" use of BAI and CAS, especially in the author's extensive World War II coverage.

For the purely military history buff, however, the most interesting parts of the book will be those devoted to the descriptions of air attacks during the lesser known wars of the 1920s and 1930s — Morocco, Palestine, Spain, Ethiopia, Nicaragua, and China, for example. The fighting between Japanese and Russian troops in the summer of 1939 is particularly interesting.

This book is first-rate history. High technology war may change the infantryman's environment, but air-land warfare is nothing new. The more a soldier learns about the past, the better he will be able to perform his mission with confidence. Professionals should read this one.

THE U.S. ARMY IN VIETNAM. By Leroy Thompson (A David and Charles book. Sterling, 1990. 216 Pages. $24.95). Reviewed by Doctor Joe P. Dunn, Converse College.

We have no shortage of manuals on the U.S. military forces that served in Vietnam, including Shelby Stanton's massive *Vietnam Order of Battle* (1982). However, this is a compact and comprehensive one that will be particularly useful as a reference work for the novice.

The author, who has published similar books in the past on various military units throughout the world, discusses the U.S. Army's force structure in the 1960s and the organization of the individual units in Vietnam; the breakdown of rank and how it differed from that in previous wars; the organization of the various types of infantry units and of the various kinds of specialized forces; and the weapons and weapon systems the Army employed. He even offers an appendix on how uniforms and insignia changed during the war.

Well organized and presented, the book contains an incredible amount of information, albeit mostly elementary, at least for military professionals and Vietnam War specialists. The numerous photographs are helpful, as are the statistical tables. Its greatest interest, I assume, will be for the military buff.

JANE'S INFANTRY WEAPONS, 1991-1992. 17th Edition. Edited by Ian V. Hogg (Jane's Information Group, 1991. 767 Pages. $210.00).

Once again the editor, Ian Hogg, assembles the Infantryman's basic tools of war into four major groupings — personal weapons, crew served weapons, ammunition, and sighting equipment. (The body armor and surveillance equipment groups formerly found in this series have been moved to another.) To these groupings he adds data tables, national inventories, and two indexes.

In his foreword, he refrains from offering his opinions on the performance of Infantry weapons in the recently concluded Gulf War, because that war was not over when he prepared it. Rather, he expresses concern about the apparent desire on the part of many governments to dismantle "military forces and the industrial base which supports them." To him, this "is simply inviting trouble." He is equally concerned with the "growing policy of 'privatising' national munitions industries."

He does take note of two new 100mm pistols, the SIG P-229 and SIG P-229SL; the new 9mm Mauser Model 90DA; and the new 9mm Colt 2000. At the same time, he wonders about the future of Heckler and Koch's G11 rifle.

As usual, we doff our hats to Ian Hogg and his group of hard-working assistants for another annual publication well done.

STRATEGIC SURVEY, 1990-1991. By the Director and Staff of the International Institute for Strategic Studies (Published by Brassey's for the IISS, 1991. 276 Pages. $25.00, Softbound).

The Institute's Director and his staff look at the international events that occurred during 1990 (actually through late March 1991), describe each, analyze them, and assess their implications for the future. They also offer an excellent 53-page overview of the Gulf War, which includes a section titled "Some Military Lessons of the War" that all Infantrymen should read.

Following an overview of the major strategic issues of the year and the Gulf War section, the events are grouped by geographic region — the Americas, Europe and the USSR, East Asia, South Asia, and Africa. Finally, the publication includes a discussion of arms control negotiations and regional chronologies of the year's important events.

WAR FROM THE TOP: GERMAN AND BRITISH MILITARY DECISION MAKING DURING WORLD WAR II. By Alan F. Wilt (Indiana University Press, 1990. 390 Pages. $35.00). Reviewed by Major Harold E. Raugh, Jr., United States Army.

A comparative analysis is a worthwhile technique in historical research and writing, for it permits fresh perspectives on topics that were previously studied in great detail. This is the approach the author, a professor of history at Iowa State University, uses as he endeavors to assess the actions of Adolf Hitler and Winston Churchill as "warlords" and their respective military high command organizations. He also describes the strategies developed by these two World War II opponents and the transformation of those strategies into actual military operations.

Throughout, the author demonstrates a much greater knowledge of Hitler and German strategy and the German conduct of the war than of Churchill and the British side; this is also revealed in the sources he uses and lists in his endnote section. And while he notes Churchill's reorganization of the British machinery of war after he became Minister of Defense, he fails to appreciate Churchill's increasing dominance within that apparatus. Numerous factual errors also mar the book's usefulness, as does his overestimation of Britain's role in the formulation of "Grand Alliance" military policy after 1943.

The book's strength is in its second half, which chronicles the major facets of German and British military plans and strategy as they were actually executed. Even though the author approaches his subject in an innovative manner, his analytical framework is often flawed, and he does little more than repeat what earlier historians have written.

STONEWALL JACKSON AT CEDAR MOUNTAIN. By Robert K. Krick (University of North Carolina Press, 1990. 472 Pages. $29.95). Reviewed by Major Don Rightmyer, United States Air Force.

In my opinion, Robert Krick's book could probably claim the title of 1990's best Civil War book. He brings a rich background of experience and knowledge to his Civil War writing efforts. For example, one of his previous and well-received works was *Lee's Colonels,* and he now serves as the chief historian at the Fredericksburg and Spotsylvania National Military Park.

This book covers a two-day period in August 1862 during which Jackson, who has become something of a legend for his conduct of the 1862 Shenandoah Valley campaign, met Union forces led by Generals John Pope and Nathaniel P. Banks in an engagement near the Virginia mountain mentioned in the book's title. Eventually, he won out.

The landscape and physical layout of the Cedar Mountain battleground certainly lend

themselves to the straightforward and clearly written battle history that the author has produced, but there is, in addition, convincing proof within the pages of this book that a master of historical investigation and narrative is at work. He certainly sets to rights many of the misconceptions and misunderstandings that have surrounded the events of this particular battle.

Cedar Mountain was not one of the war's best known battles. Still, a reader of this book will come away from it better prepared to tackle some of the more difficult Civil War histories that abound. It is an excellent military history reading experience.

THE GREAT WAR, 1914-1918: ESSAYS ON THE MILITARY, POLITICAL, AND SOCIAL HISTORY OF THE FIRST WORLD WAR. Edited by R.J.Q. Adams (Texas A&M Unversity Press, 1990. 195 Pages. $39.50). Reviewed by Chris Timmers, Charlotte, North Carolina.

World War I more than just lingers in our memory. The appalling loss of life on both sides alone guarantees it an almost sacred presence in our histories and remembrances. But we remember the war for more than its devastation: we remember it for the technology that forced military commanders to think anew of the efficacy of the cavalry charge, the supremacy of the dreadnought, and even the value of the bayonet.

The submarine, for example, in the hands of a skilled captain and an experienced crew was a deadly menace to all surface vessels. The airplane, although mostly limited to a reconnaissance role, transformed the battlefield from a two-dimensional arena to a three-dimensional one. And for the infantryman, who in every war does most of the dying, technology provided a new, hideous weapon — poison gas.

This book features the essays and commentaries of eleven scholars from three countries and nine universities. Their credentials are impressive, but a reader is struck most by the specific subject matter each chose to address. Thus, we have a detailed discussion of the inadequacy of Britain's air defenses in the years leading up to 1914 but virtually no treatment of the emerging role of airpower and the importance it would play just 20 years later in the skies over Europe and Asia.

Two important essays do stand out as being well-written overviews of their respective topics — Trevor Wilson's on the significance of World War I in modern history, and Martin Kitchen's discussion of German civil/military relations.

It is regrettable that so many fine minds produced essays of only peripheral importance or marginal interest.

RECENT AND RECOMMENDED

THE COMMANDERS. By Bob Woodward. Simon and Schuster, 1991. 398 Pages. $24.95.

NATO: AN INSTITUTION UNDER THREAT? By Jan Willem Honig. Westview Press, 1991. An East-West Occasional Paper. 69 Pages. $12.85, Softbound.

REPEALING THE WAR POWERS RESOLUTION: RESTORING THE RULE OF LAW IN U.S. FOREIGN POLICY. By Robert F. Turner. Brassey's (U.S.), 1991. 206 Pages. $25.00.

THE CONFEDERACY AS A REVOLUTIONARY EXPERIENCE. By Emory M. Thomas. A Paperback Reprint of the 1971 Edition, with an Updated Bibliography. University of South Carolina Press, 1991. 150 Pages. $9.95, Softbound.

VICTORIO AND THE MIMBRES APACHES. By Dan L. Thrapp. First Published in Hardcover in 1974. An Updated Edition. University of Oklahoma Press, 1991. 416 Pages. $14.95, Softbound.

BATAAN AND BEYOND: MEMOIRS OF A POW. By John S. Coleman. First Published in Hardcover in 1978. Texas A&M University Press, 1991. 210 Pages. $12.95, Softbound.

THE GULF WAR: ITS ORIGINS, HISTORY, AND CONSEQUENCES. By John Bulloch and Harvey Morris. (Iraq versus Iran.) Trafalgar Square/David and Charles, 1991. 309 Pages. $29.95.

THE BRITISH MILITARY DILEMMA IN IRELAND: OCCUPATION POLITICS, 1886-1914. By Elizabeth A. Muenger. University Press of Kansas, 1991. 254 Pages. $29.95.

THE GOOD REGIMENT: THE CARIGNAN-SALIERES REGIMENT IN CANADA, 1665-1668. By Jack Verney. McGill-Queen's University Press (Canada), 1991. 222 Pages. $34.95.

INFANTRYMAN PETTIT: THE CIVIL WAR LETTERS OF CORPORAL FREDERICK PETTIT. Edited by William Gilfillan Gavin. Originally Published in Hardcover in 1990. Avon Books, 1991. 240 Pages. $9.95, Softbound.

STRATEGIC ARMS CONTROL AFTER SALT. Edited by Stephen J. Cimbala. Scholarly Resources, 1989. 233 Pages. $40.00.

ENDING A NUCLEAR WAR: ARE THE SUPERPOWERS PREPARED? Edited by Stephen J. Cimbala and Joseph D. Douglass, Jr. Pergamon-Brassey's, 1988. 197 Pages. $28.00.

REFORMING DEFENSE: THE STATE OF AMERICAN CIVIL-MILITARY RELATIONS. By David C. Hendrickson. Johns Hopkins University Press, 1988. 152 Pages. $24.50.

LETHAL FRONTIERS: A SOVIET VIEW OF NUCLEAR STRATEGY, WEAPONS, AND NEGOTIATIONS. By Alexei G. Arbatov. Translated by Kent D. Lee. Praeger, 1988. 296 Pages.

THE PRESIDENCY AND THE MANAGEMENT OF NATIONAL SECURITY. By Carnes Lord. The Free Press, 1988. 207 Pages. $22.50.

AMERICAN GUERRILLA: MY WAR BEHIND JAPANESE LINES. By Roger Hilsman. Brassey's (U.S.), 1990. 313 Pages. $21.95.

AN EXAMINATION OF U.S. POLICY TOWARD POW/MIAs. Prepared by the Minority Staff of the U.S. Senate Committeee on Foreign Relations. Second Printing, September 1991. 98 Pages, Softbound.

OPERATION DRUMBEAT. By Michael Gannon. A Harper Perennial. First Published in Hardcover in 1990. HarperCollins, 1991. 490 Pages. $12.95, Softbound.

THE COLD WAR AS HISTORY, WITH A NEW EPILOGUE. By Louis J. Halle. A Harper Perennial. First Published in Hardcover in 1967. HarperCollins, 1991. 472 Pages. $12.95, Softbound.

I WALK THROUGH THE VALLEY: A WORLD WAR II INFANTRYMAN'S MEMOIR. By Bruce C. Zorns. McFarland and Company, Inc. (Box 611, Jefferson, NC 28640), 1991. 222 Pages. $23.95.

AMERICAN WARPLANES, 1908-1988: A BIBLIOGRAPHY. Compiled by Myron J. Smith, Jr. Bibliographies of Battles and Leaders Number 3. Greenwood, 1990. 500 Pages. $65.00.

AMERICA'S NATIONAL BATTLEFIELD PARKS: A GUIDE. By Joseph E. Stevens. First Published in Hardcover in 1990. University of Oklahoma Press, 1991. 352 Pages. $19.95, Softbound.

PERESTROIKA ANNUAL: VOLUME 3, 1991-1992. Abel G Aganbegyan, Editor-in-Chief. Brassey's (U.S.), 1991. 264 Pages. $23.95.

WAR DIARY OF A COMBAT ARTIST, CAPTAIN HARRY EVERETT TOWNSEND. Edited by Alfred E. Cornebise. University Press of Colorado, 1991. 344 Pages. $32.50.

MILITARY MISFORTUNES: THE ANATOMY OF FAILURE IN WAR. By Eliot A. Cohen and John Gooch. A Vintage Book. First Published in Hardcover in 1990. Random House, 1991. 296 Pages. $11.00, Softbound.

FIGHTING FOR AIR: IN THE TRENCHES WITH TELEVISION NEWS. By Liz Trotta. Simon and Schuster, 1991. 395 Pages. $22.95.

RADIO WARFARE: OSS AND CIA SUBVERSIVE PROPAGANDA. By Lawrence C. Soley. Praeger, 1989. 264 Pages. $24.95.

SPECIAL FORCES COMBAT FIRING TECHNIQUES. By Frank A. Moyer and Robert J. Scroggie. Second Edition, Paladin Press, 1988. 110 Pages.

HOW TO MAKE WAR: A COMPREHENSIVE GUIDE TO MODERN WARFARE. By James F. Dunnigan. First Revised Edition. William Morrow, 1988. 620 Pages. $14.95, Softbound.

THE AUTOMATED BATTLEFIELD. By Frank Barnaby. The Free Press, 1986. 180 Pages. $18.95.

THE ENCYCLOPEDIA OF AMERICAN INTELLIGENCE AND ESPIONAGE: FROM THE REVOLUTIONARY WAR TO THE PRESENT. By G.J.A. O'Toole. Facts on File, 1988. 464 Pages. $50.00.

DOGFACES WHO SMILED THROUGH TEARS IN WORLD WAR II. By Homer R. Ankrum. Second Edition. Graphic Publishing Company (204 N. 2d Avenue, W., Lake Mills, IA 50450), 1988. 666 Pages. $31.00.

CHARLÉMAGNE: FOUNDER OF THE HOLY ROMAN EMPIRE. By Bob Stewart, illustrations by James Field. Sterling, 1988. 48 Pages. $7.95, Softbound.

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From the Editor

RETIREMENT

Although my name will appear on the masthead of the January-February 1992 issue, I will not be in the editor's chair when that issue reaches you.

Barring any unforeseen happenings, I will retire from the U.S. Civil Service on 10 January 1992, at which time I will be two weeks short of having served the Army in one capacity or another for 49 years. That day will also mark the close of a 20-year association with INFANTRY — as military editor, as civilian deputy editor, and as civilian editor.

I shall miss the editor's chair, the very loyal and dedicated staff members with whom I have worked, and my association with so many fine Infantrymen here at Fort Benning and throughout the world.

Thanks for affording me this opportunity to serve you. And in the words of an old Irish prayer:

May the road rise to meet you.
May the wind be always at your back.
May the sun shine warm upon your face,
The rains fall soft upon your fields.
And until we meet again,
May God hold you in the palm of his hand.

ALBERT N. GARLAND

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